ORDER NO. VRD-8410-110

Service Manual

Video Cassette Recorder

Panasonic VHS

NV-250E

General Description
Adjustment Procedures
Block/Schematic Diagrams
Exploded Views/Parts List

SPECIFICATIONS

Power Source: 220V AC 50/60Hz
Power Consumption: Approx. 28 watts
Television System: CCIR: 625 lines, 50 fields
PAL colour signal
Video Recording System: 2 rotary heads, helical scanning system
Luminance: FM azimuth recording
Colour signal: converted subcarrier phase shift recording
Audio Track: 1 track
Tape Format: Tape width 12.7mm high density tape
Tape Speed: 23.39mm/sec.
Record/Playback Time: 240min. with NV-E240
FF/REW Time: Approx. 5.5min. with NV-E180
Heads: Video: 3 rotary heads
1 pair for video normal recording and playback (R-L Head)
1 pc. of head for video trick play with L′ head (field still)
Audio/Control/Audio Erase:
1 stationary head
Erase: 1 full track erase

Input Level: Video: VIDEO IN connector (BNC)
1.0Vp-p, 75Ω terminated
Audio: LINE IN jack (Phono jack)
More than −10dBV, 50kΩ
TV Tuners: VHF CH2 ~ CH12
UHF CH21 ~ CH69
Output Level: Video: VIDEO OUT connector (BNC)
1.0Vp-p, 75Ω terminated
Audio: LINE OUT jack (Phono jack)
less than −8dBV, 1kΩ
RF Modulated: UHF CHE36 ± 4
73 ± 3dB 75Ω terminated
Weight: 7.2kg
Dimensions: 430(W) × 99(H) × 373(D) mm
Accessory Supplied: 1 pc. DIN-RF Cable
Optional Accessory: Video Cassette Tape:
NV-E240 Approx. 344m, 240min.
NV-E180 Approx. 258m, 180min.
NV-E120 Approx. 174m, 120min.
NV-E60 Approx. 88m, 60min.

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

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INTRODUCTION

This service manual contains technical information which will allows service technicians to understand and service the PAL VHS Video Cassette Recorder Model NV-250E.
The NV-250E has many special features as shown in page 1-1.
These features in addition to the basic PAL VHS Format make the unit an ideal one for your culture and entertainment.

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SECTION 1
GENERAL DESCRIPTION

1-1. FEATURES

1. **Super Still Playback**

   The Super Still Playback mode is for clear, less blurred still picture.

2. **Multi-Function Display**

   Whenever an operation button is pushed the activated function is immediately indicated on this easy-to-see display. It shows you at a glance, in what operation mode the VTR is functioning.

3. **Easy Tuning for up to 16 Stations**

   It is possible to pretune up to 16 stations with a single easy-to-use tuning control, and the number of the selected programme (channel) is displayed in the Multi-Function Display.

4. **Picture Sharpness Control**

   With this control, the contours of the playback picture can be made sharper or softer.

5. **Slim Design and Front Loading System**

   This highly functional design allows loading the video cassette from the front, thus minimizing the space required for the placement.

6. **OTR Function (One-Touch Timer Recording)**

   Simply by pushing the OTR Button between 2 and 5 times, the VTR can be programmed for a recording of 30, 60, 90 or 120 minutes duration with immediate start.

7. **Stand-by OTR**

   By pushing the Stand-by Button between 1 and 4 times, the VTR can be programmed to begin the OTR function in 30, 60, 90 or 120 minutes from the present time. Then by subsequently pushing the OTR Button repeatedly, a recording duration of 30, 60, 90 or 120 minutes can be selected for OTR function with delay start.

8. **14 Day, 1-Programme Timer**

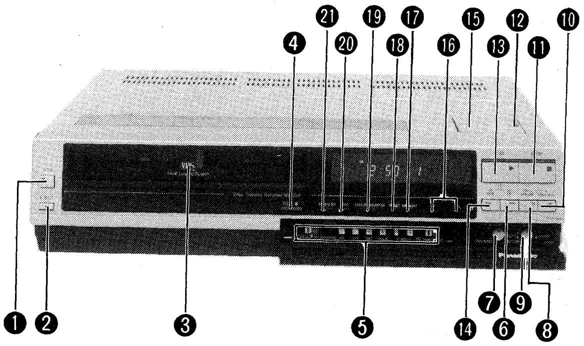
   The built-in timer can be programmed up to 14 days in advance for automatic unattended recording of a TV programme or even repeated recording of the same TV programme every day at the same time.

9. **Auto Rewind**

   When the tape reaches its end during playback, recording and any of the tape transport function (except Timer Recording and OTR), it will automatically rewind, so it's ready for storage or to be viewed again from the beginning.

1-2. CONTROLS AND COMPONENTS

TOP AND FRONT



❶ **VTR ON/OFF Switch**

❷ **Eject Button**
Push this button to remove the cassette.

❸ **Cassette Compartment**

❹ **Record Button**
Push this button to start the recording.

❺ **Timer Controls**
The timer controls are used to set the clock for the present time and to programme start and stop for timer recording.

❻ **Fast Forward/Cue Button**
Push to fast-forward wind the tape.
When this button is pushed during playback, the picture can be scanned will play back at 5 times normal speed.
Cueing will continue as long as the button is depressed.

❼ **Tracking Control**

Noise Picture

Tapes recorded on another machine show noisy or a streaky playback, picture, rotate this control slowly in either direction until the picture is clear. The control should normally be kept in the "FIX" position.

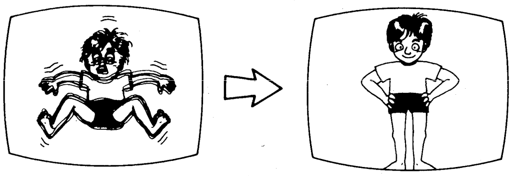
❽ **Pause/Still Button**
Push to temporarily stop the tape during recording in order to avoid recording unwanted material, or to view a paused picture during playback. Push again to release the tape from pause.

❾ **Picture Sharpness Control**
The picture sharpness control enables the playback picture to be adjusted so that its outlines are made more sharper or softer.
It has no effect when recording.

❿ **Still Advance Button**
During pause mode, push the Still Advance Button. Each time you press this button, the still-picture will advance one single field. A slow motion effect with noise is obtainable by holding down the Still Advance Button (about 1/6 speed of normal playback).

⑪ **Stop Button**
Push to stop the tape.

⑫ **V-Lock Control**
If a vertical jitter appears on the TV monitor in Still, Still-Advance or Slow mode, adjust the V-lock control at the best position so that the picture can be stabilized.
Once you adjust this control, no more adjustment is required unless you change the connected TV receiver.



⑬ **Play Button**
Push to play back a recorded tape.

⑭ **Rewind/Review Button**
Push to rewind the tape.
When this button is pushed during playback, the picture can be scanned in reverse at 5 times normal speed.
Review will continue as long as the button is pushed.

⑮ **Tuner Set-up Controls**
Used to tune to any broadcast channel in your area.

⑯ **Channel Selection Up and Down Buttons**
Push the desired channel selector buttons to select the channel you wish to view or record.

⑰ **Memory Button**
If you want find a certain tape position again later, reset the tape counter at that point and push the "memory" button once.
During Rewind or Fast Forward, the tape will stop automatically at the tape counter position "0000".

⑱ **Reset Button**
Push the reset button to reset the Counter of Multi-Function Display to "0000".

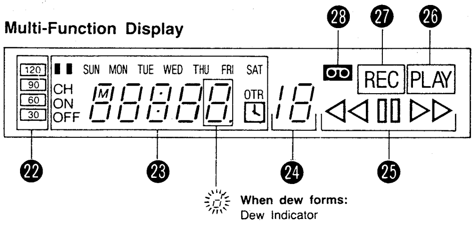
⑲ **Clock/Counter Indication Selector Button**

⑳ **OTR Button**
Automatic recording for 30, 60, 90 or 120 minutes is possible by pushing this button.

㉑ **Stand by Button**
OTR recording can start after a delay of 30, 60, 90 or 120 minutes.

1. Select the TV channel to be recorded.
2. Push the "stand by" Button repeatedly to select the time delay.
   The "stand by" indication will flash.
3. Push the OTR Button repeatedly to select the desired recording duration.
   - After selecting time delay for the OTR recording start in step 2, the OTR Button must be pushed within 8 seconds to select the OTR recording duration, otherwise the selected delay will be cancelled.

Multi-Function Display



When dew forms:
Dew Indicator

㉒ **Stand by Indicator**

㉓ **Timer Recording/Tape**

㉔ **Channel Display**

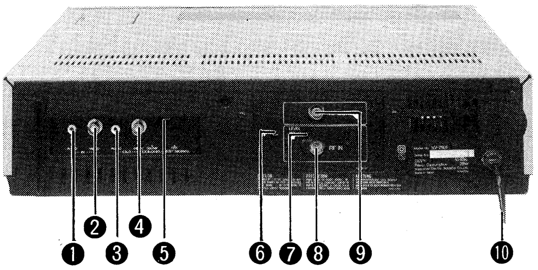
㉕ **Mode Function Display**

㉖ **Playback Indicator**

㉗ **Recording Indicator**

㉘ **Cassette Indicator**

REAR



❶ **Audio Input Socket**
For connecting an audio cable of a video camera, a component audio system or another VTR.

❷ **Video Input Socket**
For connecting the video cable of a video camera or an output video signal of another VTR.

❸ **Audio Output Socket**
For connecting an audio cable of a TV monitor, a component audio system, or another VTR.

❹ **Video Output Socket**
For connection to a TV monitor or another Video Cassette Recorder. Not used with an ordinary TV.

❺ **Colour Mode/Test Signal Switch**
In the TEST position, a black-and-white test pattern is generated, which allows easy tuning of your TV set to the video playback channel of the VTR. For normal recording and playback operation, this switch must be in the middle AUTO position.
Only if the colour reception of a station is particularily weak, setting this switch to the COLOUR position can improve the recording quality.

❻ **RF Converter Channel Selector**
For adjusting the built-in RF Converter to channel which is not used for broadcasting in your area.

❼ **RF Signal Level Switch**
Used to attenuate the reception of the VHF and/or UHF antenna signals.
If the reception is normal, set to "HIGH". If the signal strength is high and a stripped pattern appears at the top of the picture on TV, set to "LOW".

❽ **RF Input Socket**
Connect the external aerial, which is now connected to the TV set, to this socket.

❾ **RF Output Socket**
For connection to the antenna terminal (COAXIAL type) of TV with the DIN-DIN Coaxial Cable supplied with the unit.

❿ **AC Mains Cord**

SECTION 2
ADJUSTMENT PROCEDURE

2-1. MECHANICAL ADJUSTMENT PROCEDURES

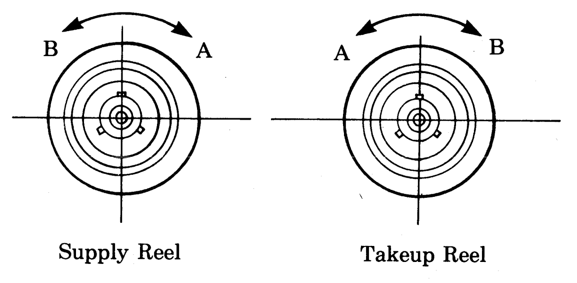
The model NV-250 use the D-1 Mechanical chassis. Please refer to the Service Manual D-1 Chassis (Order No. VRD-8310-490), except the confirmation and adjustment as shown below.

2-1-1. CONFIRMATION OF BRAKE TORQUE
2-1-2. CONFIRMATION OF TAKE-UP TORQUE

2-1-1. CONFIRMATION OF BRAKE TORQUE

* **Equipment Required:**
Torque Gauge (VFK0133)
Adaptor for Gauge (VFK0134)

* **Specification:**


B
A
A
B
Supply Reel
Takeup Reel

	A	A
Takeup	400 ~ 1000 g-cm	70 ~ 150 g-cm
Supply	400 ~ 1000 g-cm	70 ~ 150 g-cm

Fig. 1 Spec. of Brake Torque

Note:

Adjustment procedure is the same as the Service Manual D-1 Chassis item 1-4. Please refer to the Service Manual D-1 Chassis (Order No. VRD-8310-490).

2-1-2. CONFIRMATION OF TAKE-UP TORQUE

* **Equipment Required:**
Torque Gauge (VFK0133)
Adaptor for Gauge (VFK0134)

* **Specification:**

PLAY mode	105 ~ 155 g-cm
FF mode	more than 350 g-cm
REW mode	more than 350 g-cm

Note:

Adjustment procedure is the same as the Service Manual D-1 Chassis item 1-5. Please refer to the Service Manual D-1 Chassis (Order No. VRD-8310-490).

2-2. DISASSEMBLY METHOD

2-2-1. DISASSEMBLY FLOWCHART

This flowchart indicates disassembly items of the cabinet parts and P.C. Boards in order to find the item(s) necessary for servicing.
When reassembling, perform the step(s) in the reverse order.

Note:

When removing the Front Panel, work with care not for breaking the locking portions of the panel.

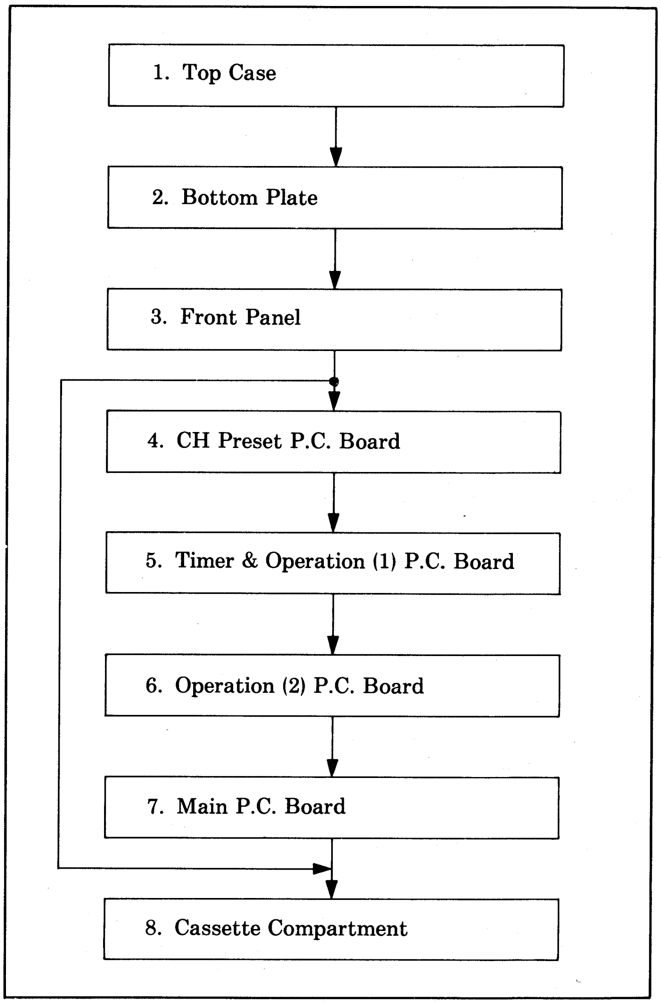

1. Top Case
2. Bottom Plate
3. Front Panel
4. CH Preset P.C. Board
5. Timer & Operation (1) P.C. Board
6. Operation (2) P.C. Board
7. Main P.C. Board
8. Cassette Compartment

Fig. 2

2-2-2. DETAILED DISASSEMBLY METHOD

1. Removal of Top Case

Unscrew 4 screws (A). Then carefully lift the rear of the case to remove.

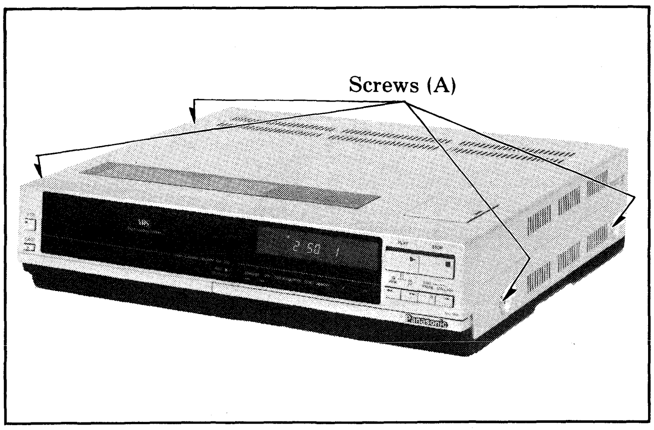


Fig. 3

2. Removal of Bottom Plate

Place the deck upside down so the bottom side face upward. Then unscrew 8 screws (B) to remove.

Note:

Place the cushion under the deck for not being damaged the top portion of the deck.

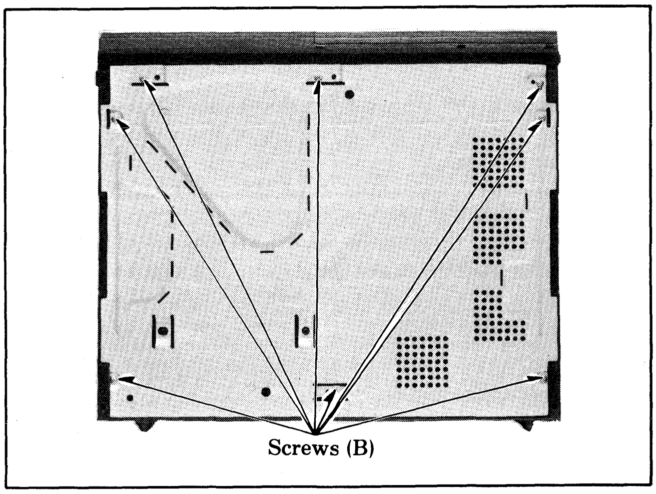


Fig. 4

3. Removal of Front Panel

Remove 3 screws (C) and unlock the 6 locking portions (D). Then hold the top portion of the panel and turn it toward the front side of the deck to remove.

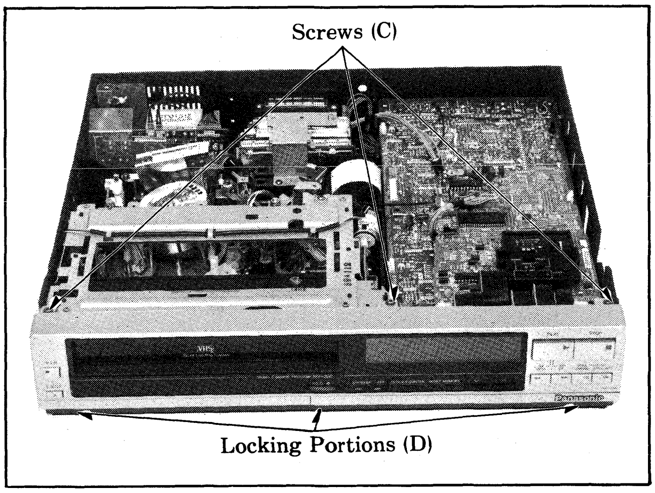

Screws (C)
Locking Portions (D)

Fig. 5

4. Removal of CH Preset P.C. Board

Unlock 3 locking Portions (E) and turn CH Preset P.C. Board toward the front side of the deck.

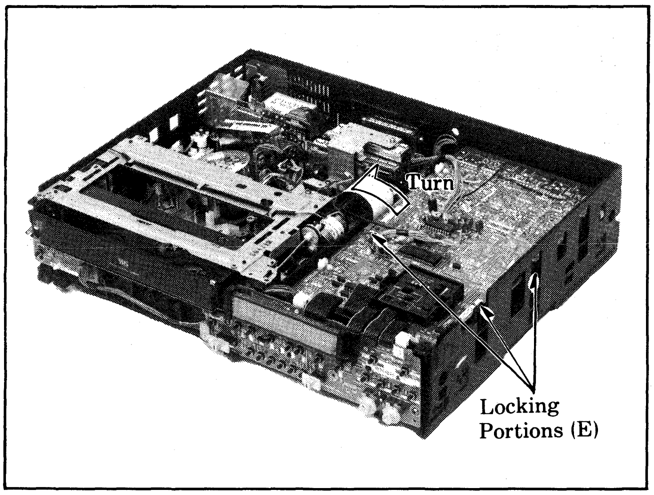

Turn
Locking Portions (E)

Fig. 6

5. Removal of Timer & Operation (1) P.C. Board

Unscrew 2 screws (F) and unlock 2 locking portions (G). Then hold bottom portion of the Timer & Operation (1) P.C. Board and turn it upward.

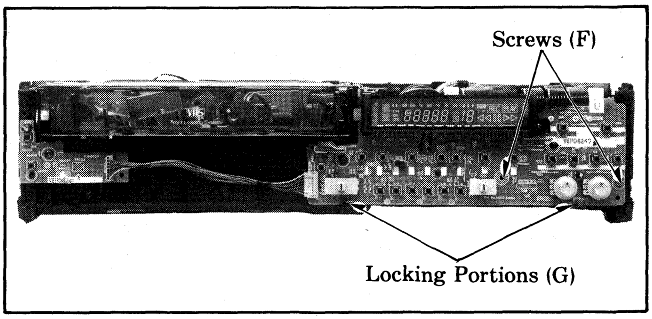

Screws (F)
Locking Portions (G)

Fig. 7

6. Removal of Operation (2) P.C. Board

Unscrew 1 screw (H) to remove the P.C. Board.

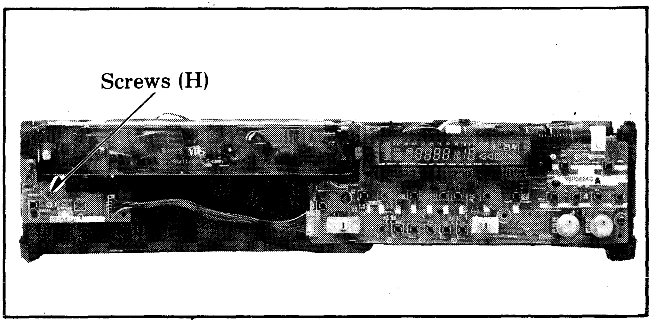


Fig. 8

7. Removal of Main P.C. Board

Unscrew 2 screws (I) and unlock 2 locking portions (J). Then turn Main P.C. Board with CH Preset P.C. Board and Timer Operation P.C. Board.

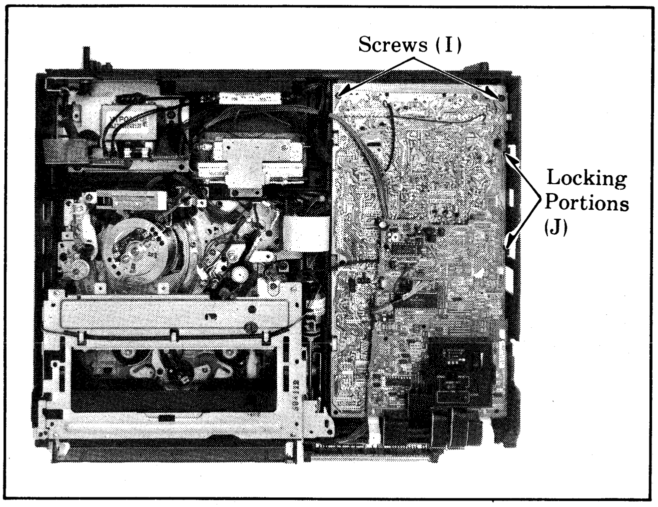

Screws (I)
Locking Portions (J)

Fig. 9

8. **Removal of Cassette Compartment**
   Remove 2 screws (K) and disconnect the connector P1510 from the Front Loading P.C. Board.
   Then carefully pull out the Cassette Compartment.

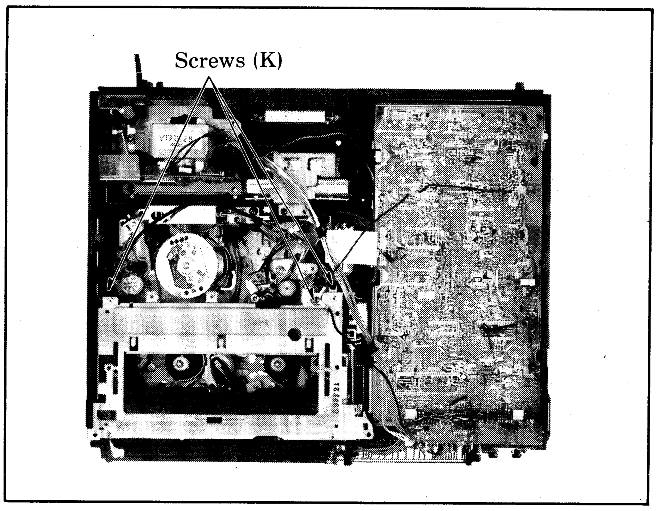


Fig. 10

2-3. REPLACEMENT OF UPPER CYLINDER UNIT

Be sure to observe the following procedures when replacing the Upper Cylinder Unit.

1. **Removing the Upper Cylinder Unit**
   First, remove two screws as shown in Fig. 11.
   Then, unsolder 8 soldered portions indicated by arrows, on the P.C. Board and finally remove the Upper Cylinder Unit by lifting it upwards.

Note:

Soldered portion can be easily removed by using solder sucking wire, etc.

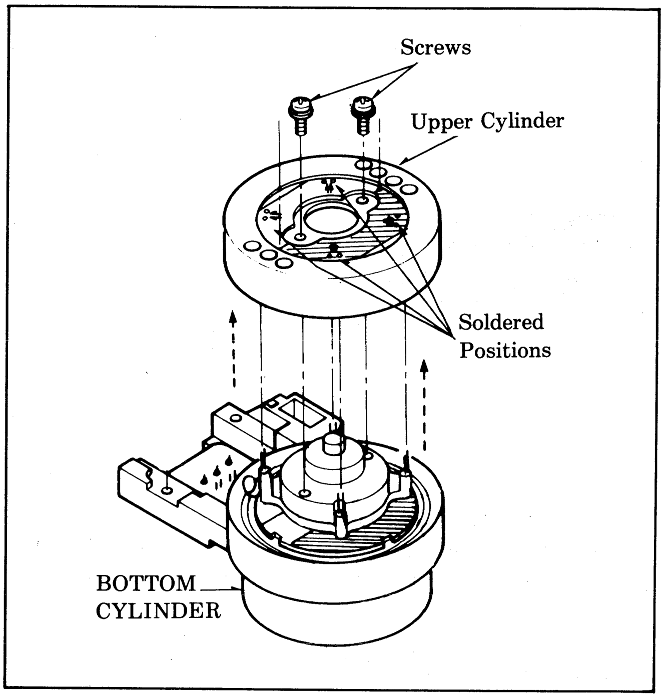

Screws
Upper Cylinder
Soldered Positions
BOTTOM CYLINDER

Fig. 11

2. **Reinstalling the Upper Cylinder Unit**
   The Upper Cylinder Unit can be reinstalled by reversing the removal procedure.
   However, when reinstalling, it be extremely careful so that both the white and green portions of the P.C. Board on the Upper Cylinder Unit will correctly match the white and green portions of the P.C. Board on Bottom Cylinder as shown in Fig. 12.

Note:

It the Upper Cylinder unit is reversely installed, no colour will appear when playing back a pre-recorded tape.

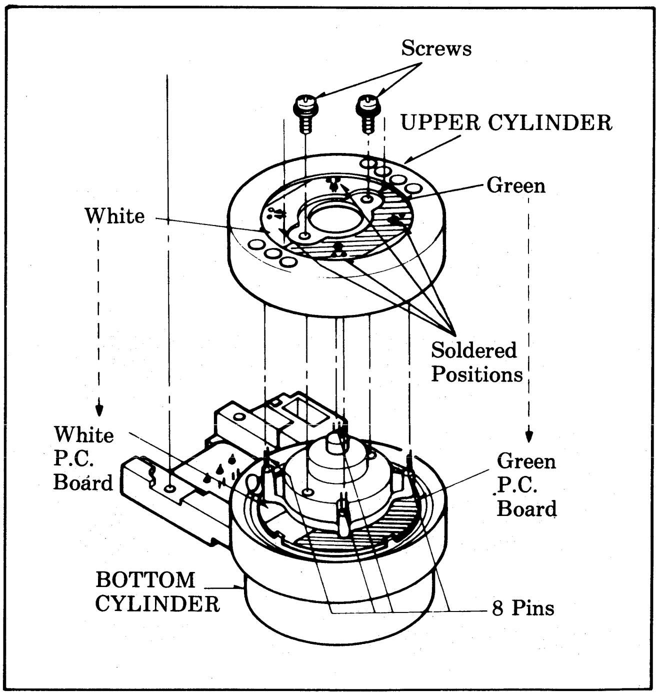

Screws
UPPER CYLINDER
Green
White
Soldered Positions
White P.C. Board
Green P.C. Board
BOTTOM CYLINDER
8 Pins

Fig. 12

2-4. REPLACEMENT OF AC CORD

Note:

When AC cord is replaced, please change both AC cord cover and Binding wire without fail for safety operation.

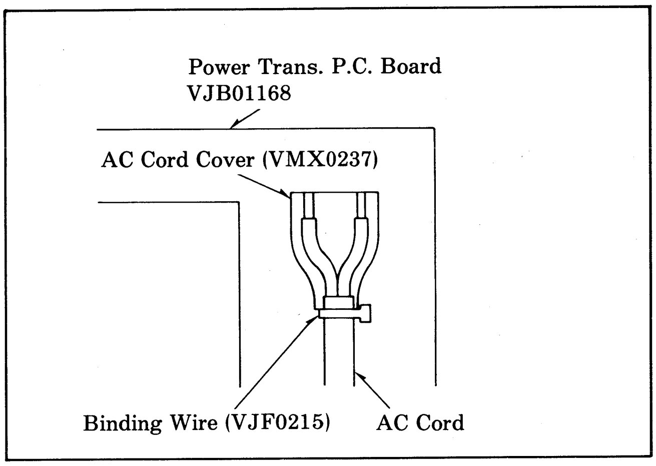

Power Trans. P.C. Board
VJB01168
AC Cord Cover (VMX0237)
Binding Wire (VJF0215)
AC Cord

Fig. 13

2-5. ELECTRICAL ADJUSTMENT PROCEDURES

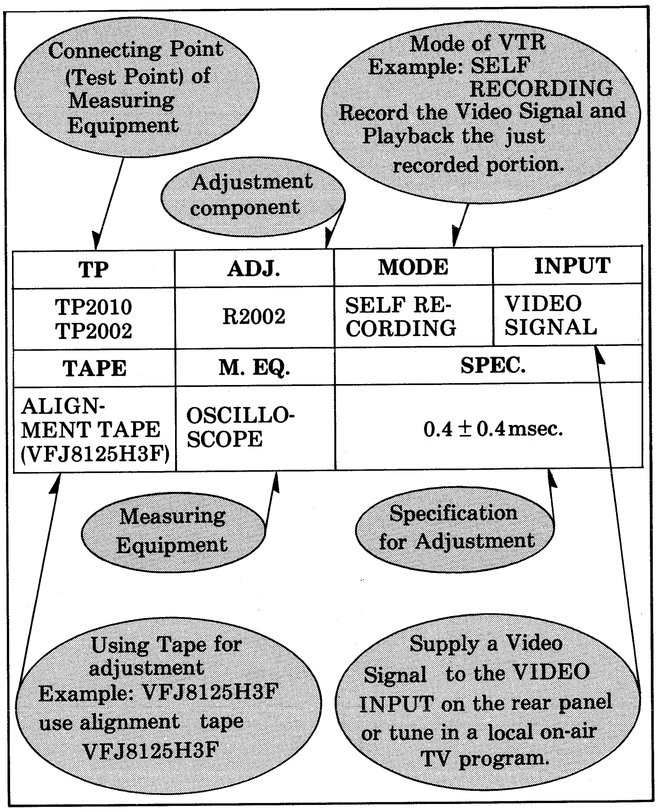
This section provides complete electrical adjustment procedures which may be required for electronic circuits of VHS Video Cassette recorder NV-250.

2-5-1. TEST EQUIPMENTS

To perform the electrical adjustments completely, following equipments are required.

1. VTVM (Vacuum Tube Volt Meter) or DVM (Digital Volt Meter)
   Voltage Range: 0.001 ~ 50V
2. Dual-Trace Oscilloscope
   Voltage Range: 0.005 ~ 50V/div.
   Frequency Range: DC ~ 10MHz
   Probes: 10:1 or 1:1
3. Frequency Counter
   Frequency Range: 0 ~ 10MHz
4. Signal Generator (Sinewave)
   Frequency Range: 0 ~ 10MHz
5. Video Sweep Generator
   Frequency Range: 0 ~ 10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. VHS Alignment Tape (VFJ8125H3F)

2-5-2. HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Adjustment component
Mode of VTR Example: SELF RECORDING Record the Video Signal and Playback the just recorded portion.
Measuring Equipment
Specification for Adjustment
Using Tape for adjustment Example: VFJ8125H3F use alignment tape VFJ8125H3F
Supply a Video Signal to the VIDEO INPUT on the rear panel or tune in a local on-air TV program.

TP	ADJ.	MODE	INPUT
TP2010 TP2002	R2002	SELF RECORDING	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE (VFJ8125H3F)	OSCILLOSCOPE	0.4 ± 0.4msec.	

Fig. 14

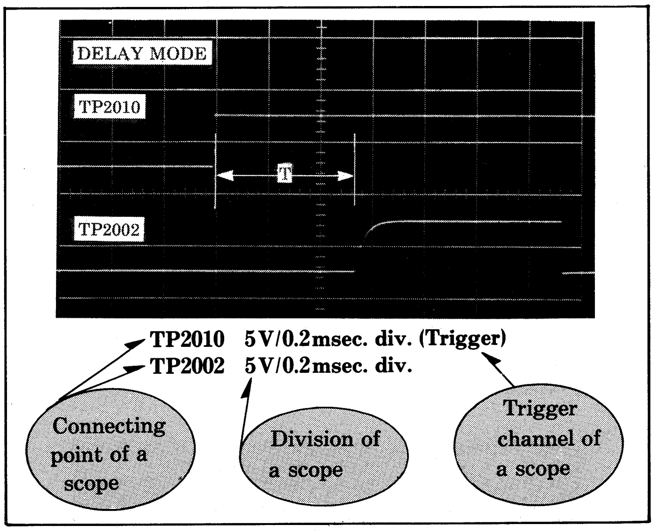


Fig. 15

POWER SUPPLY SECTION

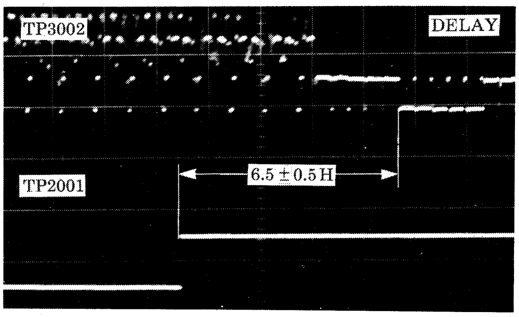
2-5-3. REG +5V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1001	VR1001	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	D.V.M	5.1 ± 0.1V	

SERVO SECTION

2-5-4. PG SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2001 TP3002	VR2001	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGN-MENT TAPE (VFJ8125H3F)	OSCILLO-SCOPE	6.5 ± 0.5H	



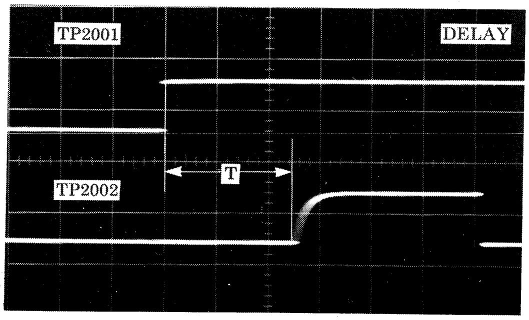
TP3002 VIDEO 1V/0.1μsec.
TP2001 H. SW 5V/0.1μsec. (Trigger)

Fig. 16

2-5-5. TRACKING FIX ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2001 TP2002	VR2002	SELF RE-CORDING	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	T=0.4 ± 0.4msec.	

1. TRACKING VR is center fix position.
2. Playback the just recorded portion.
3. Adjust VR2002 so that the period of "T" is 0.4 ± 0.4msec. as shown below.



TP2001 H. SW 5V/0.2msec. (Trigger)
TP2002 C.T.L 5V/0.2msec.

Fig. 17

2-5-6. ARTIFICIAL V-SYNC ADJUSTMENT

TP	ADJ.	M.E.Q	INPUT
TP2001 TP3002	VR2003	OSCILLO-SCOPE	VIDEO SIGNAL
TAPE	**MODE**	**SPEC.**	
		A	B
BLANK TAPE	STELL	272 ± 20μsec.	(144 ± 20μsec.)
	CUE/REV	(144 ± 20μsec.)	(144 ± 20μsec.)

( ): just for the confirmation

1. Playback the just recorded portion.
2. Set the unit to the Still mode.
3. Adjust VR2003 so that the period of "A" is 272 ± 20μsec. during PLAY • STILL mode as shown bellow.
4. If V-dancing appears on the TV screen in STILL mode, readjust VR2003 by watching still picture.

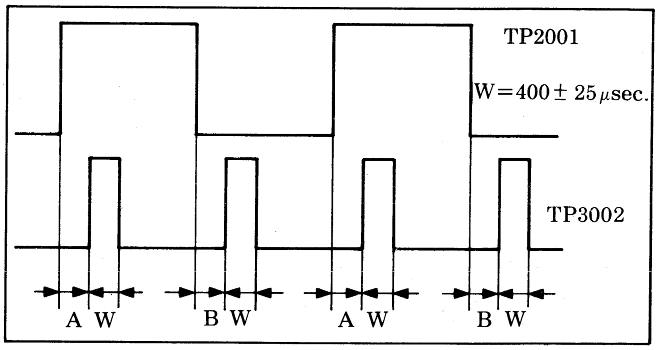
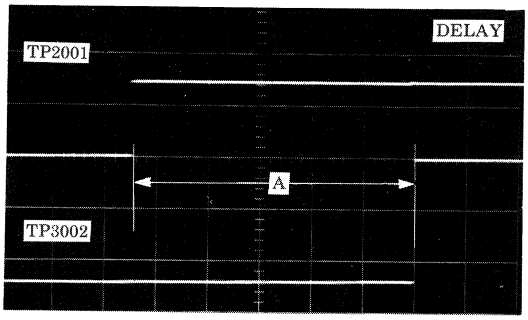


Fig. 18



TP2001 H. SW 2V/50μsec. (Trigger)
TP3002 ART. V 2V/50μsec.

Fig. 19

2-5-7. NOISE SHIFT PULSE PHASE ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC201 (11) TP2001	VR2004	STILL	
TAPE	**M. EQ.**	**SPEC.**	
*BLANK TAPE	OSCILLO-SCOPE	T=1.0 ± 0.2msec.	

***Notes:**

Set the deck as follows, using the blank tape.

1. Remove the cassette compartment. Don't disconnect the connection cable.
2. Cover the take up and supply photo sensors.
3. Insert the cassette tape for loading completion mode.

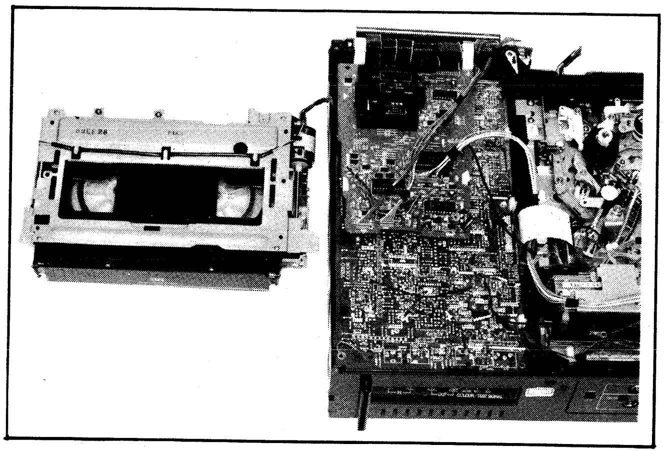
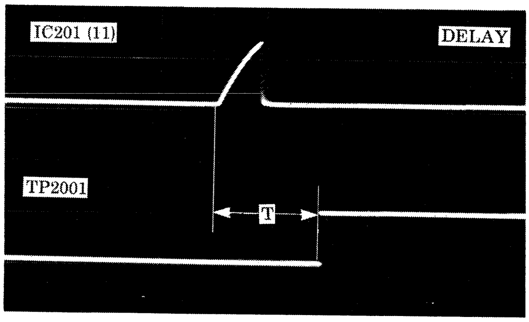


Fig. 20



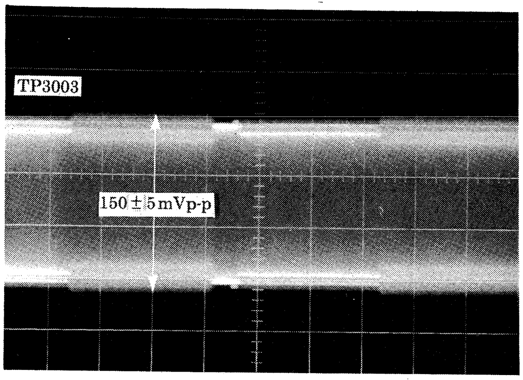
IC201 (11) NOISE PULSE 2V/0.5msec.
TP2001 H. SW 5V/0.5msec. (Trigger)

Fig. 21

LUMINANCE, CHROMINANCE & HEAD AMP SECTION

2-5-8. LUMINANCE RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3003 (HOT) TP3004 (GND)	VR3001	REC • PLAY	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	150 ± 5mVp-p	



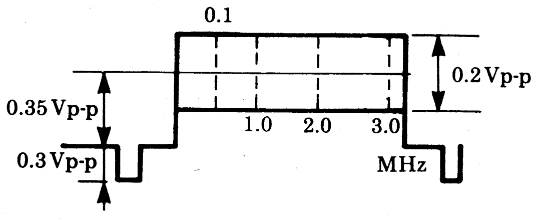
TP3003 50mV/2msec.

Fig. 22

2-5-9. HEAD AMP FREQUENCY RESPONSE ADJUSTMENT

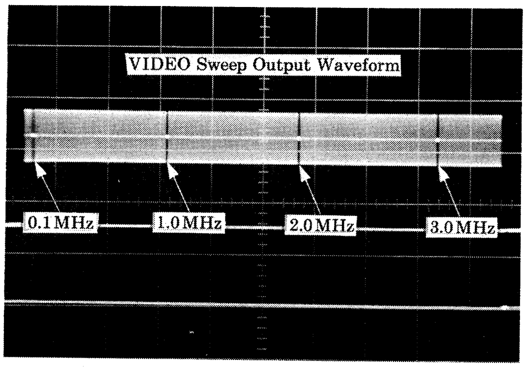
TP	ADJ.	MODE	INPUT
LINE OUT	VR3051	SELF RE-CORDING	VIDEO SWEEP
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	VIDEO SWEEP, OSCILLO-SCOPE		

1. Set the sweep generator output as shown below.



Conditions: 1. Burst Signal off.
2. 75Ω terminated.

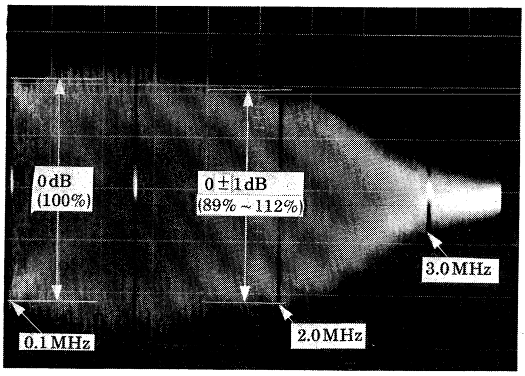
Fig. 23



0.2V/2msec. div.

Fig. 24

2. PICTURE VR is center fix position.
3. Playback the just recorded portion.
4. Adjust VR3051 so that the waveform becomes as shown below.



TP3002 0.1V/1msec. div.

Fig. 25

AUDIO SECTION

2-5-10. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002 (−) TP4003 (+)	VR4002	REC • PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	V.T.V.M	3.6 ± 0.1 mVrms	

2-5-11. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
LINE OUT	VR4001	SELF RECORDING	1 kHz, 0 dB AUDIO SIGNAL VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR V.T.V.M	E-E Level= $-8^{+2}_{-1.5}$ dB P.B. Level= E-E Level ± 0.5 dB	

Note:

Before this adjustment, "Tape Interchangeability Adjustment" and "Audio Bias Current Adjustment" must be completed.

1. Playback the just recorded portion.
2. Adjust VR4001 so that the level of the playback waveform becomes E-E level ± 0.5 dB.

TIMER, SYSTEM CONTROL SECTION

2-5-12. CLOCK ADJUSTMENT OF IC6001

TP	ADJ.	MODE	INPUT
TP6002	C6008	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQ. COUNTER/ DC POWER SUPPLY	23437.5 ± 0.030 μsec.	

Note:

To make this adjustment, please prepare adjustment jig as shown in Fig. 26.

1. Connect the JIG to each point as shown below.

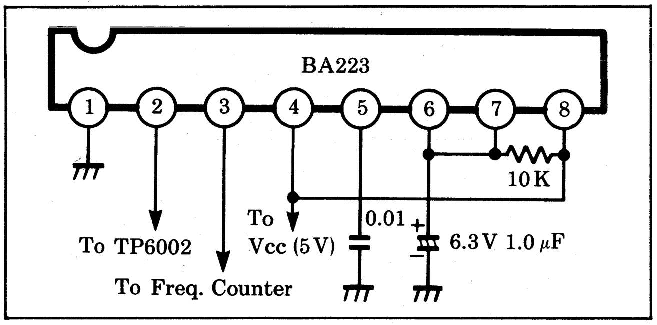


Fig. 26 Adjustment Jig.

2. Adjust C6008 for 23437.5 ± 0.030 μsec.

2-5-13. TIMER RESET ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP7508	VR7502		
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLOSCOPE/ DC POWER SUPPLY		

1. Set the voltage of the DC POWER SUPPLY for 4.6 ± 0.05 V. Then connect the DC POWER SUPPLY to TP7505 (+) and TP7503 (−).
2. Turn the VR7502 fully counterclockwise and then turn it fully clockwise.
3. Turn the VR7502 counterclockwise slowly until Low Level (0 V) at TP7508.
4. Change the voltage of the DC POWER SUPPLY from 4.6 ± 0.05 V to 4.8 ± 0.05 V.
5. Confirm the voltage at TP7508 is High Level.

TV DEMODULATOR SECTION

2-5-14. TEST EQUIPMENTS

To make adjustment completely, following equipments are required.

1. VIF SWEEP GENERATOR with the Trap Adjustor .... 38.9 MHz
2. SIF SWEEP GENERATOR .... 5.5 MHz ± 150 kHz
3. CW OSCILLATOR .... 38.9 MHz ± 100 kHz
4. MONITOR SCOPE
5. OSCILLOSCOPE
6. DIGITAL VOLT METER

Note:

To adjust the TV Demodulator Section, TV Demodulator Unit must be removed from the Deck.

1. Remove the TV DEMODURATOR Unit from the deck, and unsolder the "A" point as shown below.

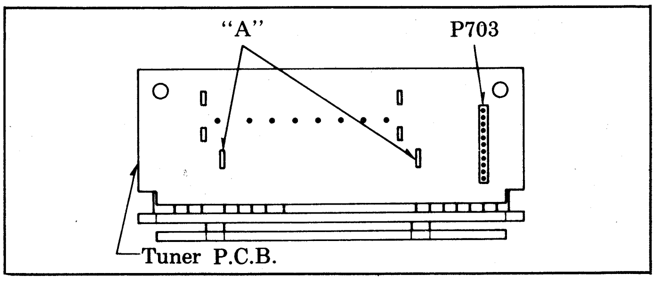


Fig. 27

2. Open the P.C.B. connect the P703, P702 and Tuner pin jack as shown below .

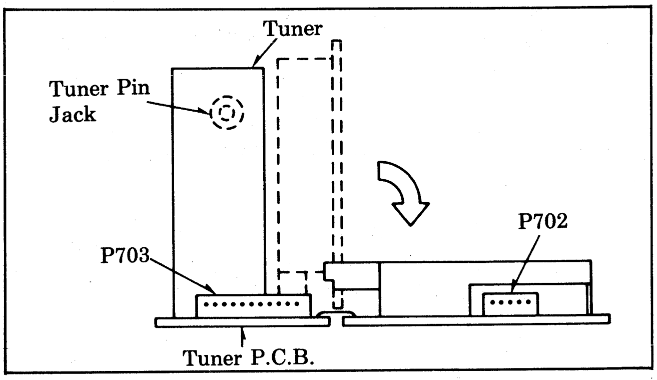


Fig. 28

2-5-15. SELECTIVE COIL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP707	T703 T704		VIF SWEEP
TAPE	M. EQ.	SPEC.	
	VIF SWEEP/ MONITOR SCOPE	A=2Vp-p B=38.9MHz	

1. Set the BAND SW of the deck to the VHF high position (VH). And turn the tuning volume so that the voltage at BT terminal of the tuner becomes 15V.
2. Set the AFC SW of the deck of OFF position.
3. Connect the VIF SWEEP to TP703 and connect the MONITOR SCOPE to TP707 as shown below.

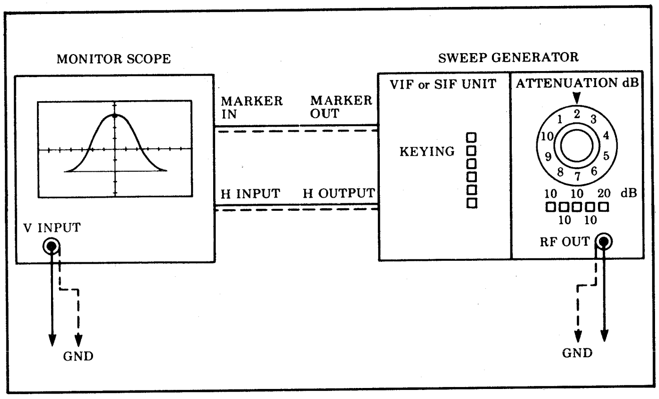


Fig. 29 Connection of Measuring Equipment

4. Connect the JIG to both points TP709 and P703-11 as shown below.

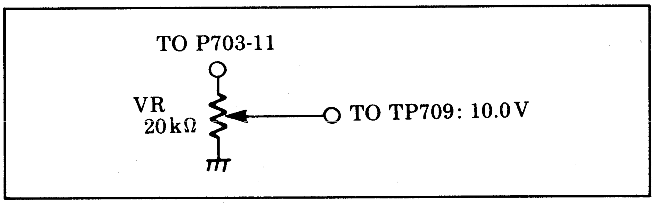


Fig. 30 Adjustment Jig

5. Adjust the output of the VIF SWEEP GENERATOR so that the sweep wave becomes 2Vp-p.
6. Turn T704 2 turns clockwise or counterclockwise.
7. Adjust T703 so that the marker position at 38.9MHz becomes peak point as shown below.

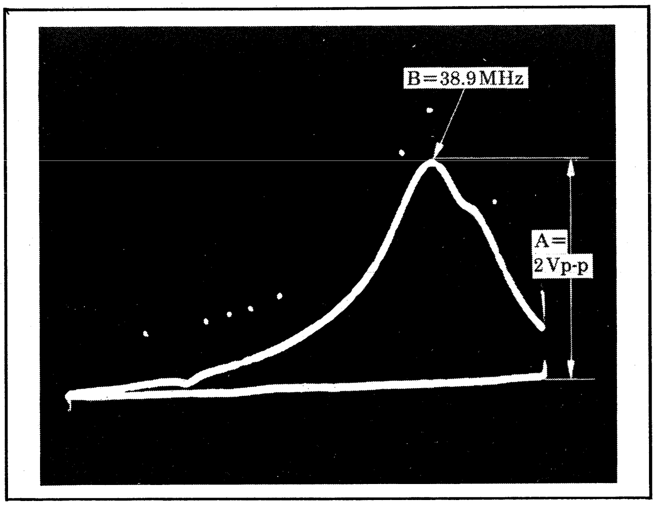


Fig. 31

8. Adjust T704 so that the marker position at 38.9MHz becomes as shown below.

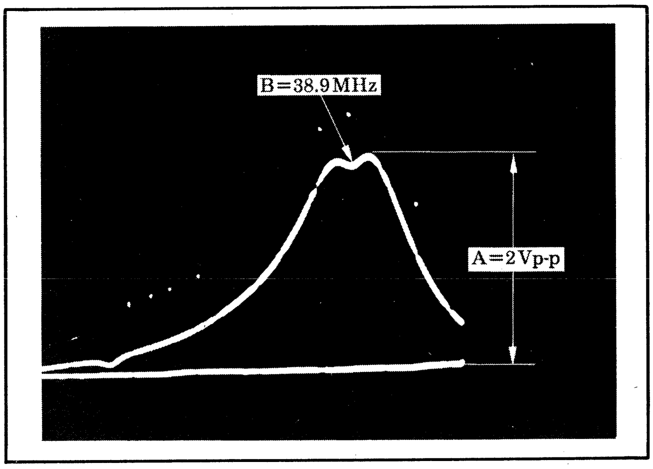


Fig. 32

2-5-16. VIF SWEEP ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP707	T701 T702		VIF SWEEP
TAPE	M. EQ.	SPEC.	
	VIF SWEEP/ MONITOR SCOPE		

1. Set the BAND SW to the VHF high position (VH) And turn the tuning volume so that the voltage at BT terminal of the tuner becomes 15V ± 1V.
2. Set the AFC SW of the deck to OFF position.
3. Connect a jumper wire between TP701 and GND. Connect a 100Ω resistor between TP704 and TP705.
4. Connect the VIF SWEEP GENERATOR to TEST POINT of the tuner. And connect the MONITOR SCOPE to TP707.
5. Connect the JIG. 1 both points TP709 and P703-11.
6. Adjust the output of the VIF SWEEP GENERATOR so that the sweep wave becomes 1.0Vp-p. Then release 20dB attenuation from the attenuator of the VIF SWEEP GENERATOR.
7. Adjust T702 so that the 33.4MHz trap becomes minimum.
8. Adjust T701-(A) so that the 40.4MHz trap becomes minimum.
9. Adjust T701-(B) so that the 31.9MHz trap becomes minimum.
10. Adjust VR1 of JIG. 1 so that the sweep wave becomes 1.0Vp-p.
11. Adjust the tuner converter coil and T701-(C) so that the sweep output waveform becomses in Fig. 34.

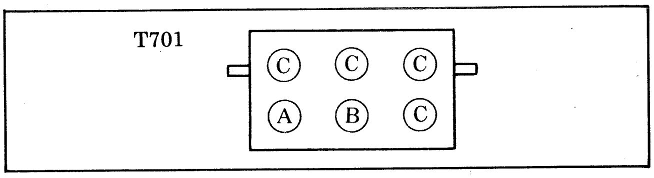


Fig. 33

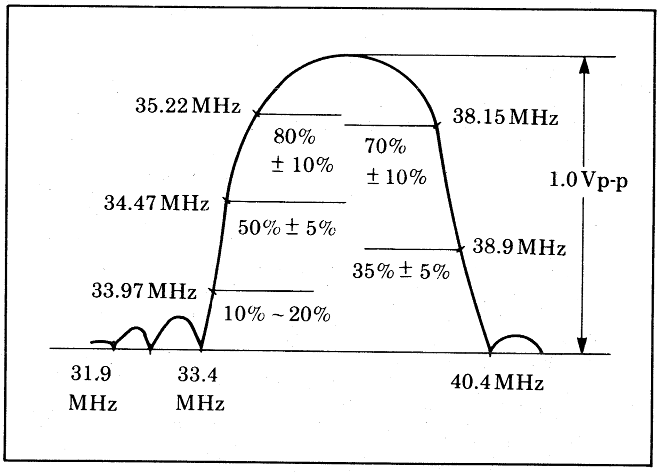


Fig. 34

2-5-17. SIF SWEEP ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP710	T751 T752		VIF SWEEP
TAPE	**M. EQ.**	**SPEC.**	
	VIF SWEEP/ MONITOR SCOPE		

1. Set the BAND SW of the deck to the VHF high position (VH). Turn the tuning volume so that the voltage at BT terminal of the tuner becomes 15V ± 1V.
2. Set the AFC SW of the deck to the OFF position.
3. Connect the SIF SWEEP GENERATOR to TP706. And connect the MONITOR SCOPE to TP710.
4. Connect the JIG. 1 to both points TP709 and P703-11. Adjust the VR1 of the JIG. 1 so that the DC level becomes less than 5V.
5. Set the output of the SIF SWEEP GENERATOR to 700mVp-p at no load.
6. Adjust T752 so that the attenuation of 5.5MHz trap becomes minimum.
7. Adjust T751 for maximum peak-to-peak amplitude of response "S" cure as show below.

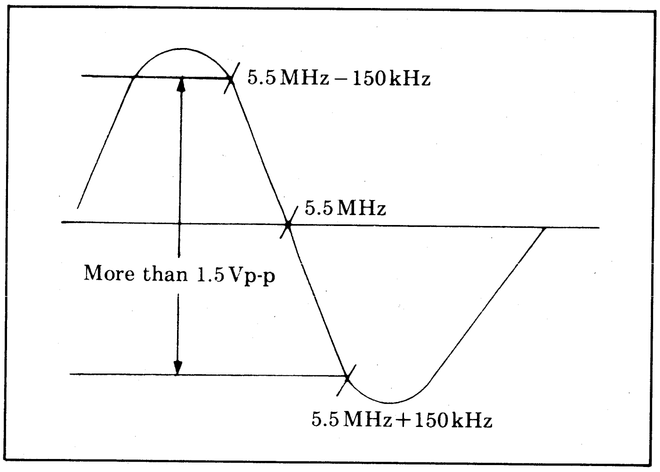


Fig. 35 SIF WAVEFORM

8. Confirm that the level between the 150kHz marker positions is more than 1.5Vp-p.

2-5-18. AFC ADJUSTMENT

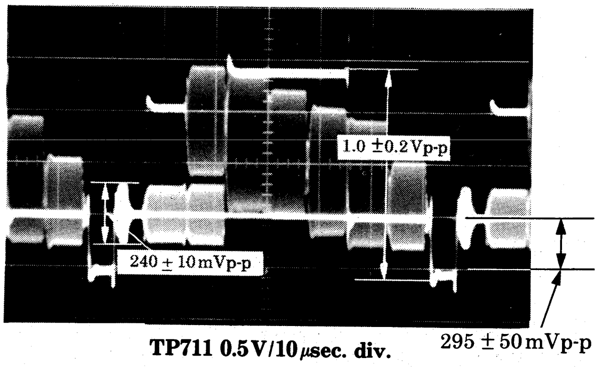
TP	ADJ.	MODE	INPUT
AFC TERMINAL OF THE TUNER	T704		CW SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
	CW OS-CILLATOR/ D.V.M.	A ± 0.3V	

1. Set the BAND SW of the deck to the VHF high position (VH). And turn the tuning volume so that the voltage at BT terminal of the tuner becomes 15V ± 1V.
2. Set the CW OSCILLATOR output to 38.9MHz 1Vp-p and connect the CW OSCILLATOR output to the TUNER TEST POINT.
3. Connect the D.V.M. to the AFC TERMINAL of the tuner and read the VOLTAGE "A", when the AFC SW is OFF.
4. Set the AFC SW to ON and adjust T704 for A ± 0.3V.
5. Change the frequency of the CW OSCILLATOR ± 100kHz centered at 38.9MHz. And confirm that the difference of the AFC voltage is more than ± 2V.

2-5-19. CONFIRMATION OF VIDEO LEVEL AND BURST LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP711	VR741		RF COLOUR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	VIDEO LEVEL 1.0 ± 0.2Vp-p BURST LEVEL 240 ± 20mVp-p	

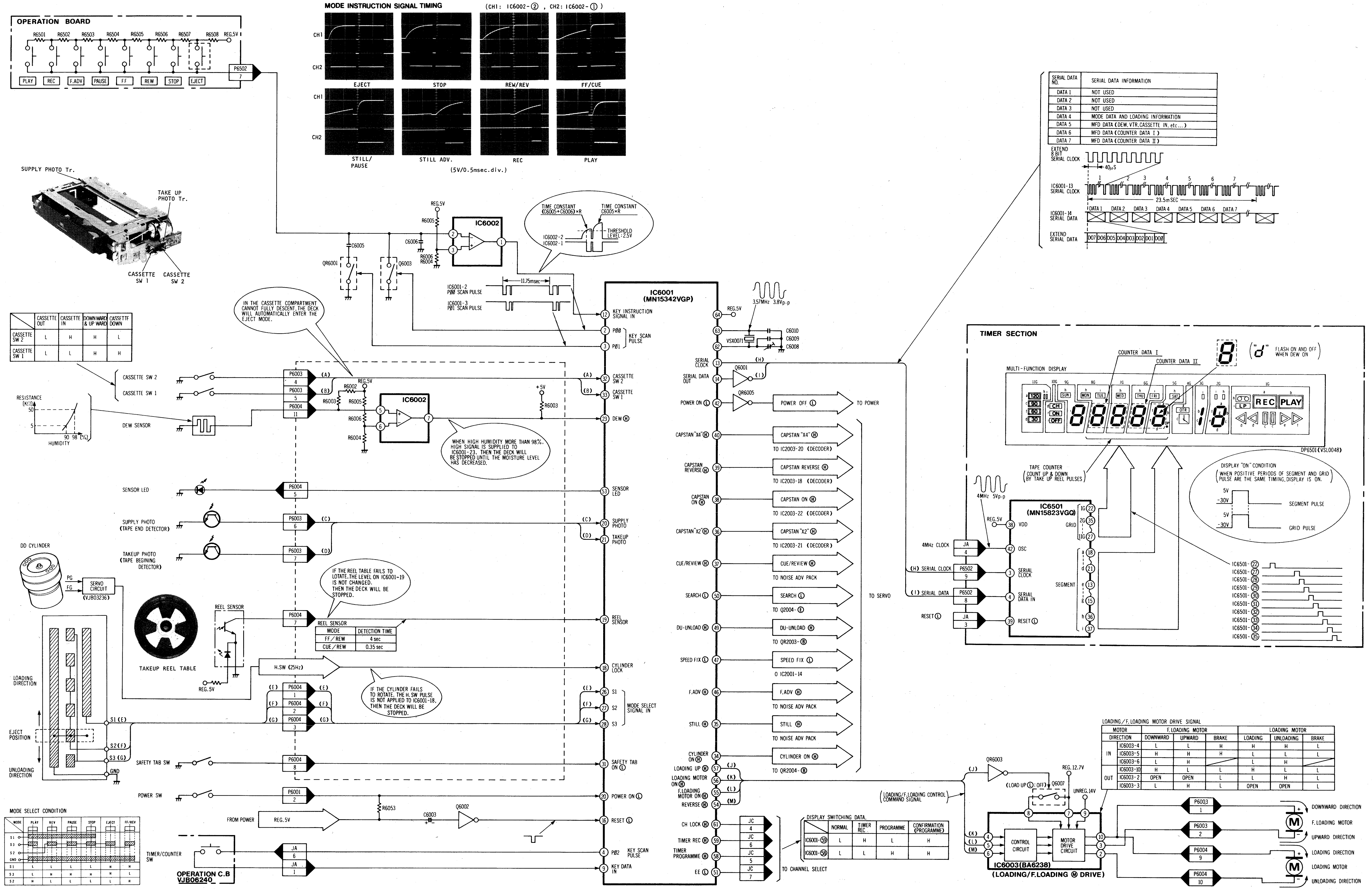
1. Supply the RF COLOUR BAR SIGNAL to RF IN TERMINAL and tune this signal.
2. Set the AFC SW to ON position.
3. Confirm that the video level at TP711 is 1.0 ± 0.2Vp-p and confirm that the sync level is 295 ± 50mVp-p.
4. Adjust VR741 so that the burst level becomes 240 ± 20mVp-p as shown below.



TP711 0.5V/10μsec. div.

Fig. 36

SECTION 3
BLOCK DIAGRAM AND SCHEMATIC DIAGRAM
3-1. SYSTEM CONTROL BLOCK DIAGRAM


MODE INSTRUCTION SIGNAL TIMING
(CH1: IC6002-②, CH2: IC6002-①)
CH1
CH2
EJECT
STOP
REW/REV
FF/CUE
STILL/PAUSE
STILL ADV.
REC
PLAY
(5V/0.5msec.div.)
OPERATION BOARD
R6501
R6502
R6503
R6504
R6505
R6506
R6507
R6508
REG.5V
PLAY
REC
F.ADV
PAUSE
FF
REW
STOP
EJECT
P6502
7
SUPPLY PHOTO Tr.
TAKE UP PHOTO Tr.
CASSETTE SW 1
CASSETTE SW 2
REG.5V
R6005
IC6002
C6005
C6006
R6006
R6004
QR6001
Q6003
TIME CONSTANT (C6005+C6006)×R
TIME CONSTANT C6005×R
IC6002-2
IC6002-1
THRESHOLD LEVEL: 2.5V
11.75msec
IC6001-2 PØØ SCAN PULSE
IC6001-3 PØ1 SCAN PULSE
IC6001 (MN15342VGP)
KEY INSTRUCTION SIGNAL IN
PØØ
PØ1
KEY SCAN PULSE
3.57MHz 3.8Vp-p
REG.5V
VSX0071
C6010
C6009
C6008
SERIAL CLOCK
SERIAL DATA OUT
Q6001
QR6005
POWER ON Ⓛ
POWER OFF Ⓛ
TO POWER
CASSETTE SW 2
CASSETTE SW 1
RESISTANCE (KΩ)
50
5
90 98 (%)
HUMIDITY
DEW SENSOR
P6003
P6004
REG.5V
R6002
R6003
R6005
R6006
R6004
+5V
DEW Ⓗ
CAPSTAN "X4" Ⓗ
TO IC2003-20 (DECODER)
CAPSTAN REVERSE Ⓗ
TO IC2003-18 (DECODER)
CAPSTAN ON Ⓗ
TO IC2003-22 (DECODER)
CAPSTAN "X2" Ⓗ
TO IC2003-21 (DECODER)
CUE/REVIEW Ⓗ
TO NOISE ADV PACK
SEARCH Ⓛ
TO Q2004-Ⓔ
DU-UNLOAD Ⓗ
TO QR2003-Ⓑ
SPEED FIX Ⓛ
0 IC2001-14
F.ADV Ⓗ
TO NOISE ADV PACK
STILL Ⓗ
TO NOISE ADV PACK
CYLINDER ON Ⓗ
TO QR2004-Ⓑ
TO SERVO
SENSOR LED
SUPPLY PHOTO (TAPE END DETECTOR)
TAKEUP PHOTO (TAPE BEGINING DETECTOR)
DD CYLINDER
PG
FG
SERVO CIRCUIT
(VJB03236)
REEL SENSOR
TAKEUP REEL TABLE
REG.5V
H.SW (25Hz)
SENSOR LED
SUPPLY PHOTO
TAKEUP PHOTO
REEL SENSOR
CYLINDER LOCK
S1
S2
S3
MODE SELECT SIGNAL IN
LOADING DIRECTION
EJECT POSITION
UNLOADING DIRECTION
S1 (E)
S2 (F)
S3 (G)
GND
SAFETY TAB SW
SAFETY TAB ON Ⓛ
CYLINDER ON Ⓗ
LOADING UP Ⓗ
LOADING MOTOR ON Ⓗ
F.LOADING MOTOR ON Ⓗ
REVERSE Ⓗ
POWER SW
P6001
POWER ON Ⓛ
FROM POWER
REG.5V
R6053
C6003
Q6002
RESET Ⓛ
CH LOCK Ⓗ
TIMER REC Ⓗ
TIMER PROGRAMME Ⓗ
EE Ⓛ
JC
TO CHANNEL SELECT
TIMER/COUNTER SW
JA
PØ2 KEY SCAN PULSE
KEY DATA IN
OPERATION C.B
VJB06240
EXTEND 8 BIT SERIAL CLOCK
40μS
IC6001-13 SERIAL CLOCK
23.5mSEC
IC6001-14 SERIAL DATA
DATA 1
DATA 2
DATA 3
DATA 4
DATA 5
DATA 6
DATA 7
EXTEND SERIAL DATA
D07
D06
D05
D04
D03
D02
D01
D0Ø
TIMER SECTION
MULTI-FUNCTION DISPLAY
COUNTER DATA I
COUNTER DATA II
("d" FLASH ON AND OFF WHEN DEW ON)
SUN
MON
TUE
WED
THU
FRI
SAT
120
90
60
30
CH
ON
OFF
OTR
LP
REC
PLAY
DP6501 (VSL0048)
TAPE COUNTER (COUNT UP & DOWN BY TAKE UP REEL PULSES)
4MHz 5Vp-p
IC6501 (MN15823VGQ)
REG.5V
VDD
OSC
SERIAL CLOCK
SERIAL DATA IN
RESET Ⓛ
GRID
SEGMENT
4MHz CLOCK
(H) SERIAL CLOCK
(I) SERIAL DATA
RESET Ⓛ
P6502
DISPLAY "ON" CONDITION
(WHEN POSITIVE PERIODS OF SEGMENT AND GRID PULSE ARE THE SAME TIMING, DISPLAY IS ON.)
5V
-30V
SEGMENT PULSE
GRID PULSE
IC6501-㉒
IC6501-㉗
IC6501-㉘
IC6501-㉙
IC6501-㉚
IC6501-㉛
IC6501-㉜
IC6501-㉝
IC6501-㉞
IC6501-㉟
(LOADING/F.LOADING CONTROL COMMAND SIGNAL)
QR6003
REG.12.7V
(LOADING UP Ⓛ: OFF)
Q6007
UNREG.14V
CONTROL CIRCUIT
MOTOR DRIVE CIRCUIT
IC6003 (BA6238)
(LOADING/F.LOADING Ⓜ DRIVE)
P6003
P6004
DOWNWARD DIRECTION
F.LOADING MOTOR
UPWARD DIRECTION
LOADING DIRECTION
LOADING MOTOR
UNLOADING DIRECTION

IN THE CASSETTE COMPARTMENT CANNOT FULLY DESCENT, THE DECK WILL AUTOMATICALLY ENTER THE EJECT MODE.

WHEN HIGH HUMIDITY MORE THAN 98%, HIGH SIGNAL IS SUPPLIED TO IC6001-23. THEN THE DECK WILL BE STOPPED UNTIL THE MOISTURE LEVEL HAS DECREASED.

IF THE REEL TABLE FAILS TO LOTATE, THE LEVEL ON IC6001-19 IS NOT CHANGED. THEN THE DECK WILL BE STOPPED.

IF THE CYLINDER FAILS TO ROTATE. THE H.SW PULSE IS NOT APPLIED TO IC6001-18, THEN THE DECK WILL BE STOPPED.

	CASSETTE OUT	CASSETTE IN	DOWN WARD & UP WARD	CASSETTF DOWN
CASSETTE SW 2	L	H	H	L
CASSETTE SW 1	L	L	H	H

REEL SENSOR

MODE	DETECTION TIME
FF/REW	4 sec
CUE/REW	0.35 sec

MODE SELECT CONDITION

MODE	PLAY	REV	PAUSE	STOP	EJECT	FF/REV
S1	L	L	L	L	H	H
S3	L	H	H	H	H	L
S2	H	L	L	L	L	H

SERIAL DATA NO.	SERIAL DATA INFORMATION
DATA 1	NOT USED
DATA 2	NOT USED
DATA 3	NOT USED
DATA 4	MODE DATA AND LOADING INFORMATION
DATA 5	MFD DATA (DEW, VTR, CASSETTE IN, etc...)
DATA 6	MFD DATA (COUNTER DATA I)
DATA 7	MFD DATA (COUNTER DATA II)

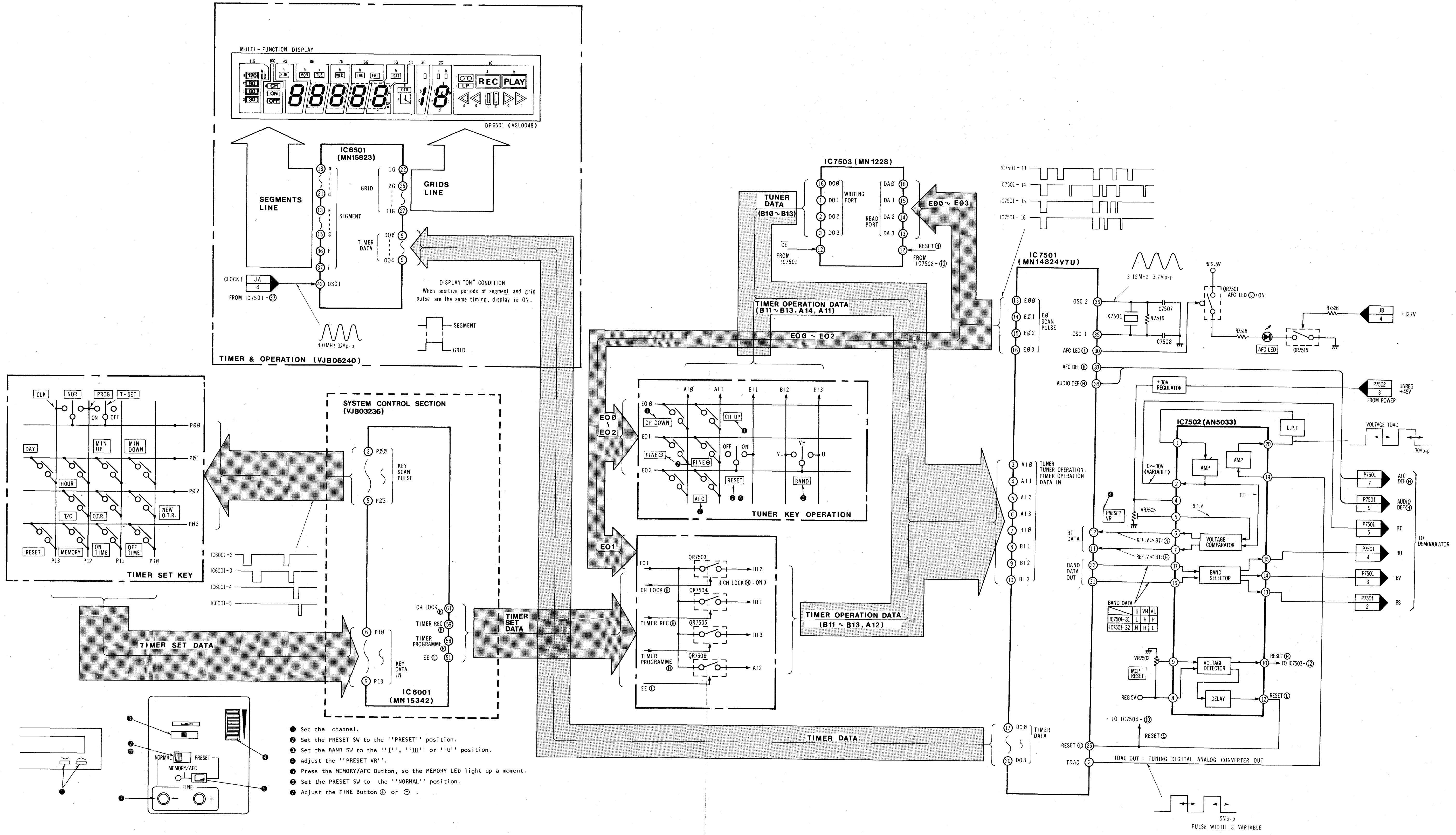
DISPLAY SWITCHING DATA.

	NORMAL	TIMER REC	PROGRAMME	CONFIRMATION (PROGRAMME)
IC6001-(59)	L	H	L	H
IC6001-(58)	L	L	H	H

LOADING/F.LOADING MOTOR DRIVE SIGNAL

MOTOR		F.LOADING MOTOR			LOADING MOTOR		
DIRECTION		DOWNWARD	UPWARD	BRAKE	LOADING	UNLOADING	BRAKE
IN	IC6003-4	L	L	H	H	H	L
	IC6003-5	H	H	H	L	L	L
	IC6003-6	L	H		L	H	
OUT	IC6003-10	H	L	L	H	L	L
	IC6003-2	OPEN	OPEN	L	L	H	L
	IC6003-3	L	H	L	OPEN	OPEN	L

3-2. TIMER BLOCK DIAGRAM


MULTI-FUNCTION DISPLAY
DP6501 (VSL0048)
IC6501 (MN15823)
SEGMENTS LINE
GRIDS LINE
GRID
SEGMENT
TIMER DATA
CLOCK1
JA 4
FROM IC7501-37
OSC1
4.0MHz 3.7Vp-p
DISPLAY "ON" CONDITION
When positive periods of segment and grid pulse are the same timing, display is ON.
SEGMENT
GRID
TIMER & OPERATION (VJB06240)
CLK
NOR
PROG
T-SET
ON
OFF
DAY
MIN UP
MIN DOWN
HOUR
T/C
O.T.R.
NEW O.T.R.
RESET
MEMORY
ON TIME
OFF TIME
P13
P12
P11
P10
P00
P01
P02
P03
TIMER SET KEY
SYSTEM CONTROL SECTION (VJB03236)
KEY SCAN PULSE
IC6001-2
IC6001-3
IC6001-4
IC6001-5
CH LOCK
TIMER REC
TIMER PROGRAMME
EE
KEY DATA IN
IC6001 (MN15342)
TIMER SET DATA
TIMER SET DATA
IC7503 (MN1228)
TUNER DATA (B10 ~ B13)
WRITING PORT
READ PORT
CE
FROM IC7501
RESET
FROM IC7502-10
E00 ~ E03
TIMER OPERATION DATA (B11 ~ B13, A14, A11)
E00 ~ E02
E00
E02
E01
CH DOWN
CH UP
FINE⊖
FINE⊕
OFF
ON
VH
VL
U
RESET
BAND
AFC
TUNER KEY OPERATION
QR7503
QR7504
QR7505
QR7506
CH LOCK
TIMER REC
TIMER PROGRAMME
EE
(CH LOCK : ON)
TIMER OPERATION DATA (B11 ~ B13, A12)
TIMER DATA
IC7501-13
IC7501-14
IC7501-15
IC7501-16
IC7501 (MN14824VTU)
E0 SCAN PULSE
OSC 2
OSC 1
X7501
C7507
R7519
C7508
3.12MHz 3.7Vp-p
AFC LED
AFC DEF
AUDIO DEF
REG.5V
QR7501
AFC LED : ON
R7518
R7526
QR7515
JB 4
+12.7V
+30V REGULATOR
P7502 3
UNREG +45V
FROM POWER
TUNER TUNER OPERATION, TIMER OPERATION DATA IN
IC7502 (AN5033)
L.P.F
VOLTAGE TDAC
30Vp-p
AMP
AMP
0~30V (VARIABLE)
PRESET VR
VR7505
REF.V
BT
VOLTAGE COMPARATOR
REF.V > BT
REF.V < BT
BT DATA
BAND DATA OUT
BAND SELECTOR
BAND DATA
U VH VL
IC7501-31 L H H
IC7501-32 H H L
P7501 7
P7501 9
P7501 5
P7501 4
P7501 3
P7501 2
AFC DEF
AUDIO DEF
BT
BU
BV
BS
TO DEMODULATOR
VR7502
MCP RESET
VOLTAGE DETECTOR
DELAY
REG 5V
RESET
TO IC7503-12
TO IC7504-20
TIMER DATA
RESET
TDAC
TDAC OUT : TUNING DIGITAL ANALOG CONVERTER OUT
5Vp-p
PULSE WIDTH IS VARIABLE
NORMAL
PRESET
MEMORY/AFC
FINE

❶ Set the channel.

❷ Set the PRESET SW to the ''PRESET'' position.

❸ Set the BAND SW to the ''I'', ''III'' or ''U'' position.

❹ Adjust the ''PRESET VR''.

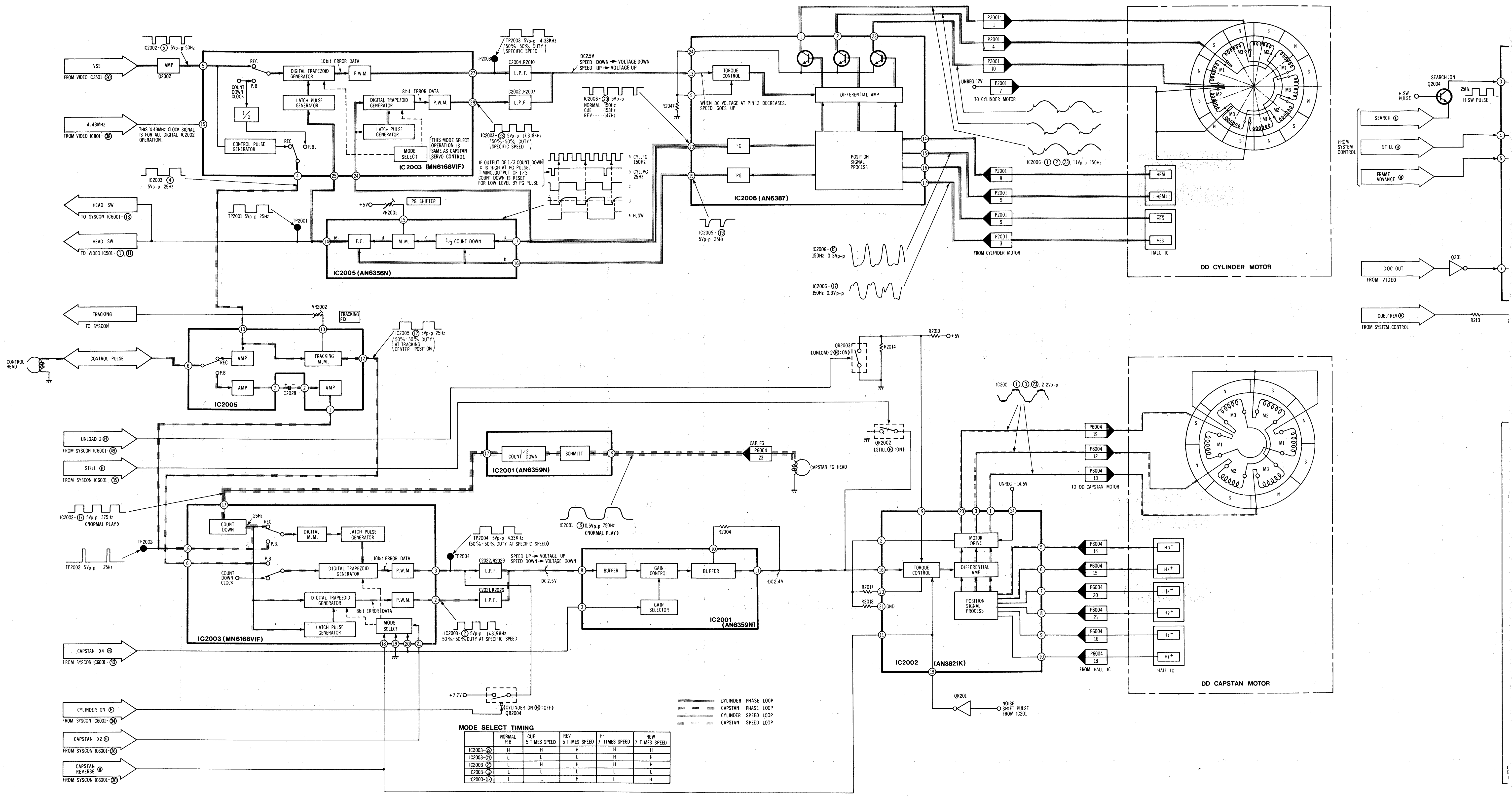
❺ Press the MEMORY/AFC Button, so the MEMORY LED light up a moment.

❻ Set the PRESET SW to the ''NORMAL'' position.

❼ Adjust the FINE Button ⊕ or ⊖ .

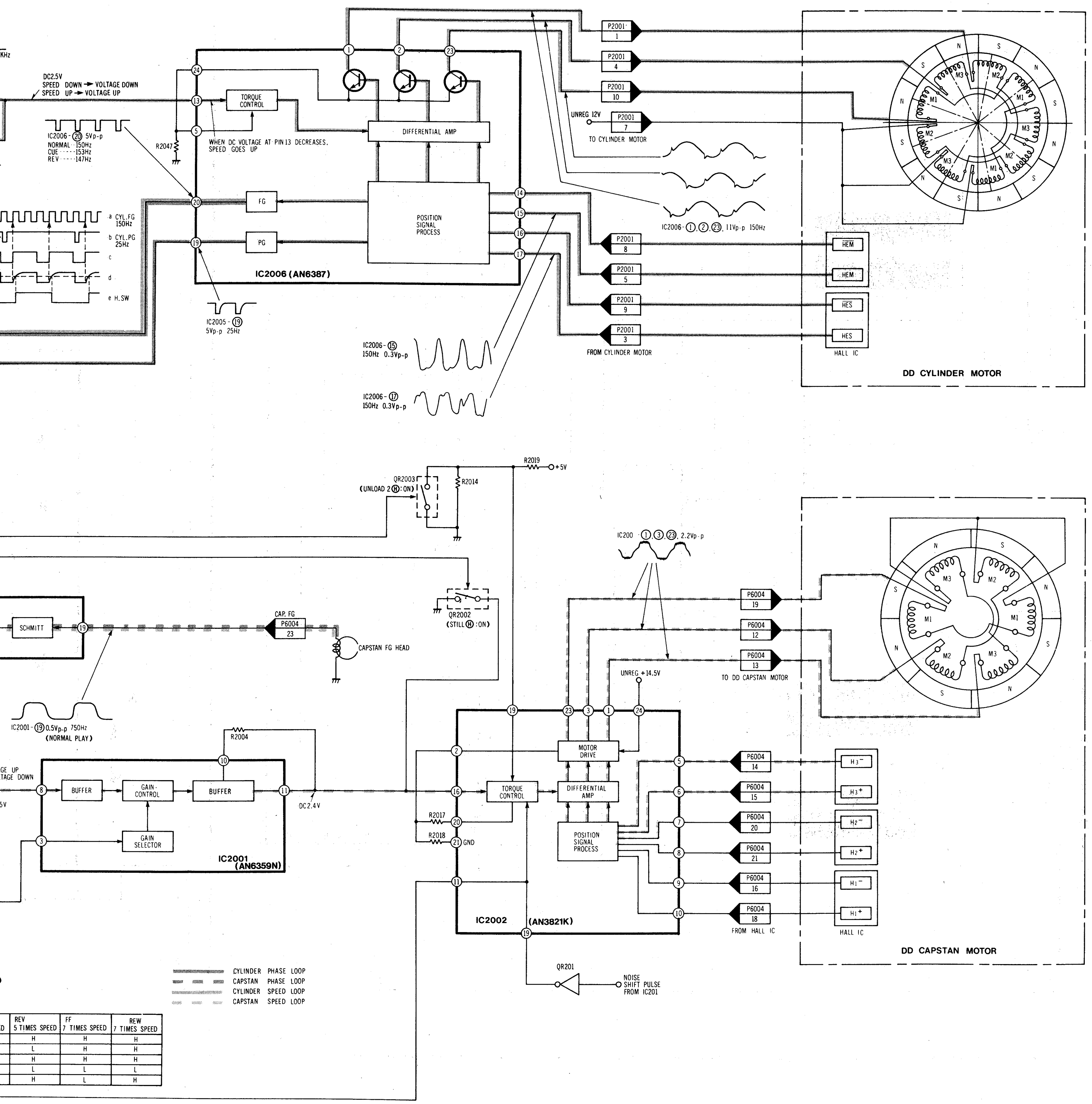
Back Page:
SYSTEM CONTROL Section

3-3. SERVO BLOCK DIAGRAM

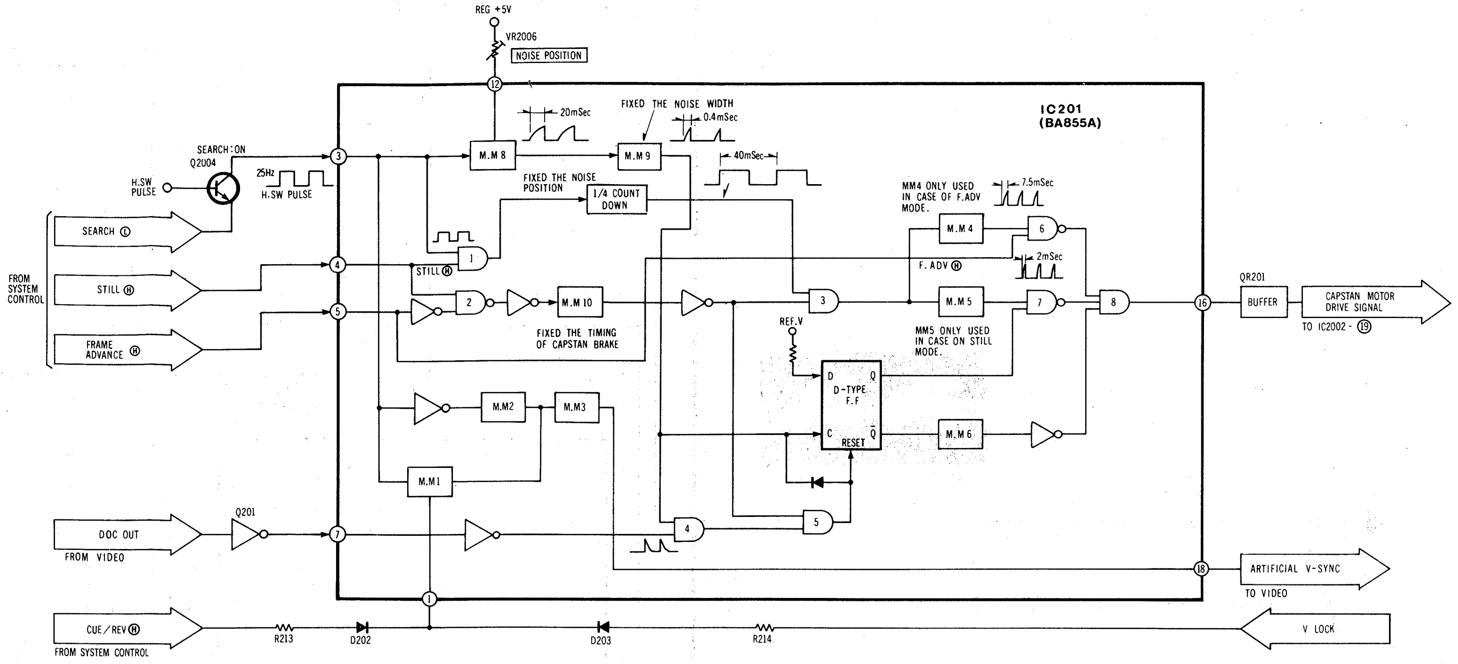

VSS
FROM VIDEO IC3501-⑳
AMP
Q2002
IC2002-⑤ 5Vp-p 50Hz
4.43MHz
FROM VIDEO IC801-㊳
THIS 4.43MHz CLOCK SIGNAL IS FOR ALL DIGITAL IC2002 OPERATION.
REC
COUNT DOWN CLOCK
P.B
1/2
CONTROL PULSE GENERATOR
P.B.
DIGITAL TRAPEZOID GENERATOR
10bit ERROR DATA
P.W.M.
LATCH PULSE GENERATOR
8bit ERROR DATA
MODE SELECT
THIS MODE SELECT OPERATION IS SAME AS CAPSTAN SERVO CONTROL
IC2003 (MN6168VIF)
IC2003-④ 5Vp-p 25Hz
TP2003 5Vp-p 4.33KHz (50%-50% DUTY SPECIFIC SPEED)
TP2003
C2004,R2010
L.P.F.
C2002,R2007
IC2003-㉘ 5Vp-p 17.318KHz (50%-50% DUTY SPECIFIC SPEED)
DC2.5V
SPEED DOWN → VOLTAGE DOWN
SPEED UP → VOLTAGE UP
IC2006-⑳ 5Vp-p
NORMAL 150Hz
CUE 153Hz
REV 147Hz
R2047
IF OUTPUT OF 1/3 COUNT DOWN c IS HIGH AT PG PULSE, TIMING,OUTPUT OF 1/3 COUNT DOWN IS RESET FOR LOW LEVEL BY PG PULSE
a CYL.FG 150Hz
b CYL.PG 25Hz
c
d
e H.SW
HEAD SW
TO SYSCON IC6001-⑱
HEAD SW
TO VIDEO IC501-①,⑪
TP2001 5Vp-p 25Hz
TP2001
+5V
VR2001
PG SHIFTER
F.F.
M.M.
1/3 COUNT DOWN
IC2005 (AN6356N)
TORQUE CONTROL
WHEN DC VOLTAGE AT PIN13 DECREASES, SPEED GOES UP
DIFFERENTIAL AMP
FG
PG
POSITION SIGNAL PROCESS
IC2006 (AN6387)
IC2005-⑲ 5Vp-p 25Hz
IC2006-⑮ 150Hz 0.3Vp-p
IC2006-⑰ 150Hz 0.3Vp-p
P2001 1
P2001 4
P2001 10
UNREG 12V
P2001 7
TO CYLINDER MOTOR
IC2006-①,②,㉓, 11Vp-p 150Hz
P2001 8
P2001 5
P2001 9
P2001 3
FROM CYLINDER MOTOR
HEM
HES
HALL IC
M1
M2
M3
N
S
DD CYLINDER MOTOR
SEARCH:ON
Q2004
H.SW PULSE
25Hz
H.SW PULSE
SEARCH Ⓛ
STILL Ⓗ
FRAME ADVANCE Ⓗ
FROM SYSTEM CONTROL
DOC OUT
FROM VIDEO
Q201
CUE/REV Ⓗ
FROM SYSTEM CONTROL
R213
TRACKING
TO SYSCON
VR2002
TRACKING FIX
CONTROL HEAD
CONTROL PULSE
AMP
TRACKING M.M.
C2028
IC2005
IC2005-⑫ 5Vp-p 25Hz (50%-50% DUTY AT TRACKING CENTER POSITION)
UNLOAD 2 Ⓗ
FROM SYSCON IC6001-㊾
STILL Ⓗ
FROM SYSCON IC6001-㉟
IC2002-⑰ 5Vp-p 375Hz (NORMAL PLAY)
TP2002
TP2002 5Vp-p 25Hz
COUNT DOWN
25Hz
DIGITAL M.M.
IC2003 (MN6168VIF)
TP2004 5Vp-p 4.33KHz (50%-50% DUTY AT SPECIFIC SPEED)
TP2004
C2022,R2029
C2021,R2026
SPEED UP → VOLTAGE UP
SPEED DOWN → VOLTAGE DOWN
DC2.5V
IC2003-② 5Vp-p 17.319KHz 50%-50% DUTY AT SPECIFIC SPEED
1/2 COUNT DOWN
SCHMITT
IC2001 (AN6359N)
CAP. FG
P6004 23
CAPSTAN FG HEAD
IC2001-⑲ 0.5Vp-p 750Hz (NORMAL PLAY)
R2004
BUFFER
GAIN CONTROL
GAIN SELECTOR
IC2001 (AN6359N)
DC2.4V
R2019
+5V
QR2003
(UNLOAD 2 Ⓗ:ON)
R2014
QR2002
(STILL Ⓗ:ON)
IC200 ①,③,㉓, 2.2Vp-p
UNREG +14.5V
P6004 19
P6004 12
P6004 13
TO DD CAPSTAN MOTOR
MOTOR DRIVE
DIFFERENTIAL AMP
POSITION SIGNAL PROCESS
R2017
R2018
GND
IC2002 (AN3821K)
P6004 14
P6004 15
P6004 20
P6004 21
P6004 16
P6004 18
FROM HALL IC
H3⁻
H3⁺
H2⁻
H2⁺
H1⁻
H1⁺
HALL IC
DD CAPSTAN MOTOR
QR201
NOISE SHIFT PULSE FROM IC201
CAPSTAN X4 Ⓗ
FROM SYSCON IC6001-㊵
+2.7V
(CYLINDER ON Ⓗ:OFF)
QR2004
CYLINDER ON Ⓗ
FROM SYSCON IC6001-㉞
CAPSTAN X2 Ⓗ
FROM SYSCON IC6001-㊱
CAPSTAN REVERSE
FROM SYSCON IC6001-㉚
CYLINDER PHASE LOOP
CAPSTAN PHASE LOOP
CYLINDER SPEED LOOP
CAPSTAN SPEED LOOP

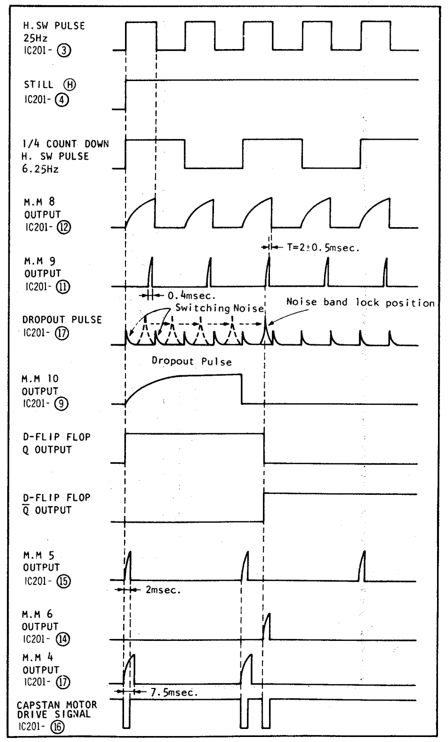
MODE SELECT TIMING

	NORMAL P.B	CUE 5 TIMES SPEED	REV 5 TIMES SPEED	FF 7 TIMES SPEED	REW 7 TIMES SPEED
IC2003-㉒	H	H	H	H	H
IC2003-㉑	L	L	L	H	H
IC2003-⑳	L	H	H	H	H
IC2003-⑲	L	L	L	L	L
IC2003-⑱	L	L	H	L	H

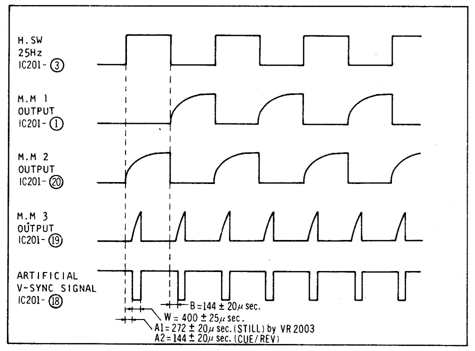

KHz
DC2.5V
SPEED DOWN → VOLTAGE DOWN
SPEED UP → VOLTAGE UP
IC2006-⑳ 5Vp-p
NORMAL 150Hz
CUE 153Hz
REV 147Hz
R2047
TORQUE CONTROL
WHEN DC VOLTAGE AT PIN 13 DECREASES, SPEED GOES UP
DIFFERENTIAL AMP
FG
PG
POSITION SIGNAL PROCESS
IC2006 (AN6387)
a CYL.FG 150Hz
b CYL.PG 25Hz
c
d
e H.SW
IC2005-⑲ 5Vp-p 25Hz
P2001 1
P2001 4
P2001 10
UNREG 12V
P2001 7
TO CYLINDER MOTOR
IC2006-①,②,㉓, 11Vp-p 150Hz
P2001 8
P2001 5
P2001 9
P2001 3
FROM CYLINDER MOTOR
IC2006-⑮ 150Hz 0.3Vp-p
IC2006-⑰ 150Hz 0.3Vp-p
HEM
HEM
HES
HES
HALL IC
M1
M2
M3
N
S
DD CYLINDER MOTOR
R2019
+5V
QR2003
(UNLOAD 2Ⓗ:ON)
R2014
QR2002
(STILLⒽ:ON)
SCHMITT
CAP. FG
P6004 23
CAPSTAN FG HEAD
IC2001-⑲ 0.5Vp-p 750Hz
(NORMAL PLAY)
GE UP
TAGE DOWN
5V
R2004
BUFFER
GAIN CONTROL
BUFFER
GAIN SELECTOR
IC2001 (AN6359N)
DC2.4V
IC200 ①,③,㉓, 2.2Vp-p
UNREG +14.5V
MOTOR DRIVE
TORQUE CONTROL
DIFFERENTIAL AMP
POSITION SIGNAL PROCESS
R2017
R2018
GND
IC2002 (AN3821K)
QR201
NOISE SHIFT PULSE FROM IC201
P6004 19
P6004 12
P6004 13
TO DD CAPSTAN MOTOR
P6004 14
P6004 15
P6004 20
P6004 21
P6004 16
P6004 18
FROM HALL IC
H3⁻
H3⁺
H2⁻
H2⁺
H1⁻
H1⁺
HALL IC
DD CAPSTAN MOTOR
CYLINDER PHASE LOOP
CAPSTAN PHASE LOOP
CYLINDER SPEED LOOP
CAPSTAN SPEED LOOP

D	REV 5 TIMES SPEED	FF 7 TIMES SPEED	REW 7 TIMES SPEED
	H	H	H
	L	H	H
	H	H	H
	L	L	L
	H	L	H


REG +5V
VR2006
NOISE POSITION
IC201 (BA855A)
SEARCH:ON
Q2004
H.SW PULSE
25Hz
H.SW PULSE
SEARCH Ⓛ
STILL Ⓗ
FRAME ADVANCE Ⓗ
FROM SYSTEM CONTROL
20mSec
M.M 8
FIXED THE NOISE WIDTH
0.4mSec
M.M 9
FIXED THE NOISE POSITION
1/4 COUNT DOWN
40mSec
STILL Ⓗ
M.M 10
FIXED THE TIMING OF CAPSTAN BRAKE
MM4 ONLY USED IN CASE OF F.ADV MODE.
7.5mSec
M.M 4
F. ADV Ⓗ
2mSec
M.M 5
MM5 ONLY USED IN CASE ON STILL MODE.
REF.V
D-TYPE F.F
RESET
M.M 6
M.M2
M.M3
M.M1
DOC OUT
FROM VIDEO
Q201
QR201
BUFFER
CAPSTAN MOTOR DRIVE SIGNAL
TO IC2002-⑲
ARTIFICIAL V-SYNC
TO VIDEO
CUE/REV Ⓗ
FROM SYSTEM CONTROL
R213
D202
D203
R214
V LOCK



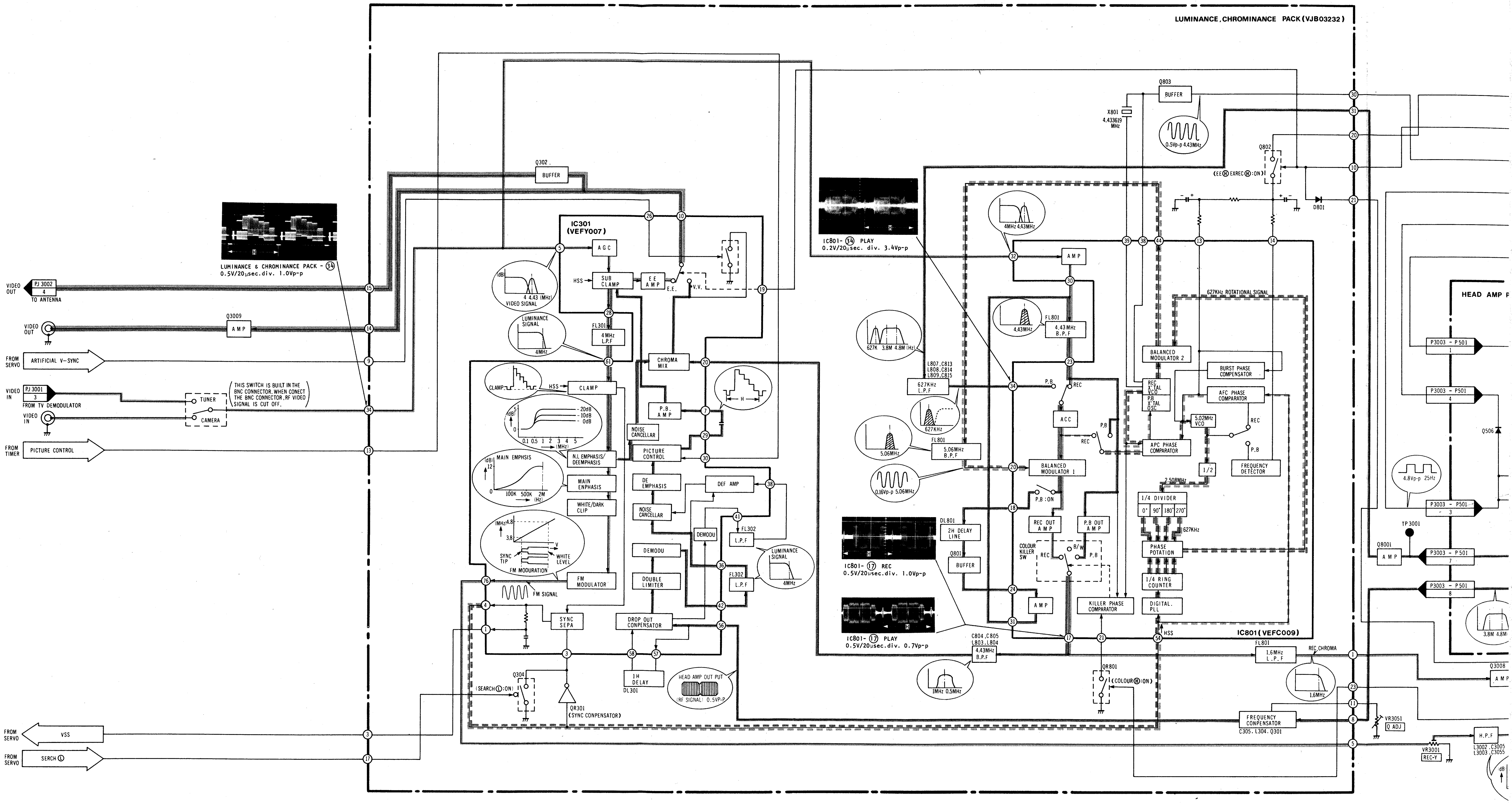
STILL CIRCUIT TIMING CHART

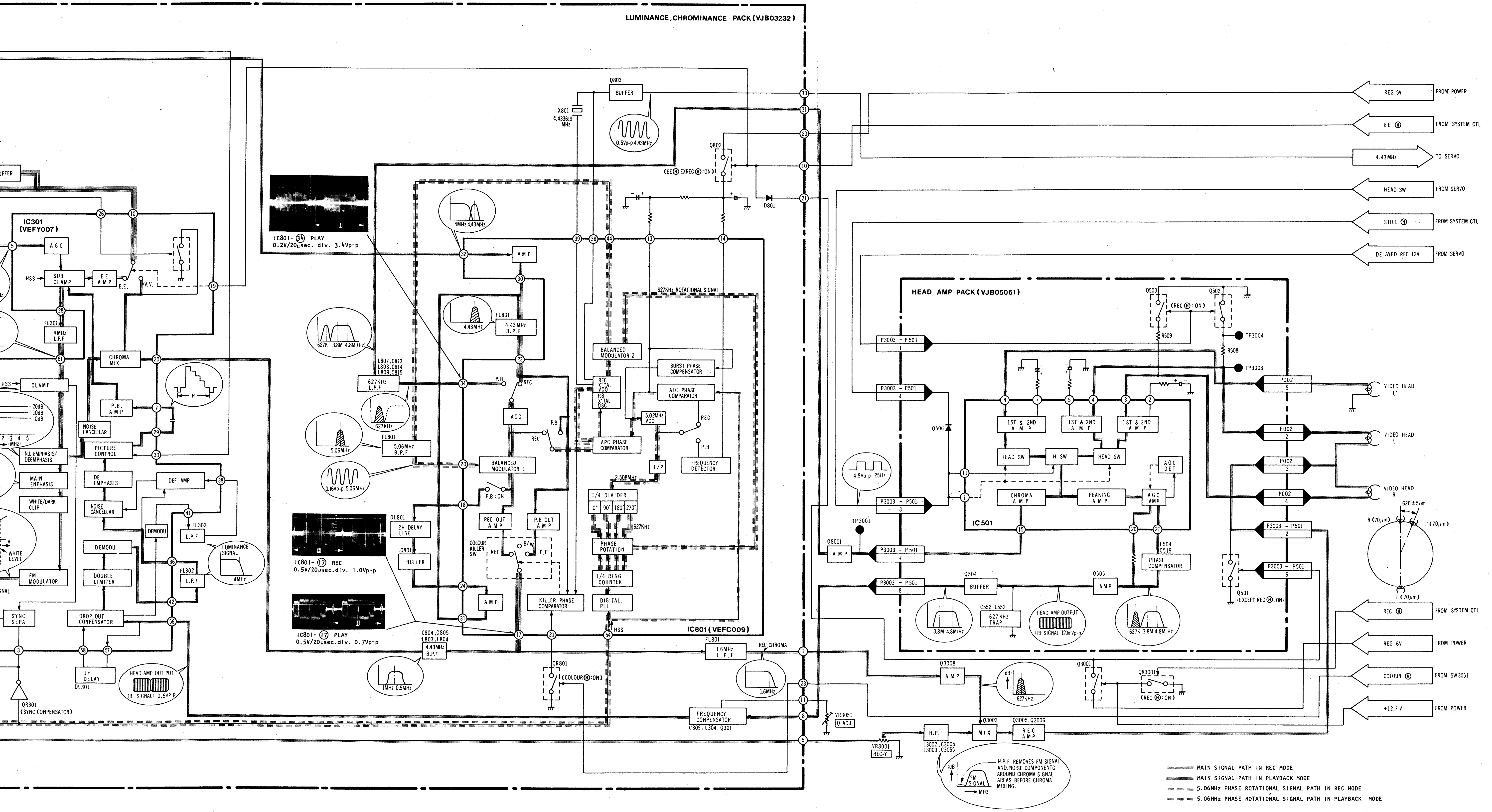


PHASE RELATION OF THE ARTIFICIAL V-SYNC SIGNAL IN STILL

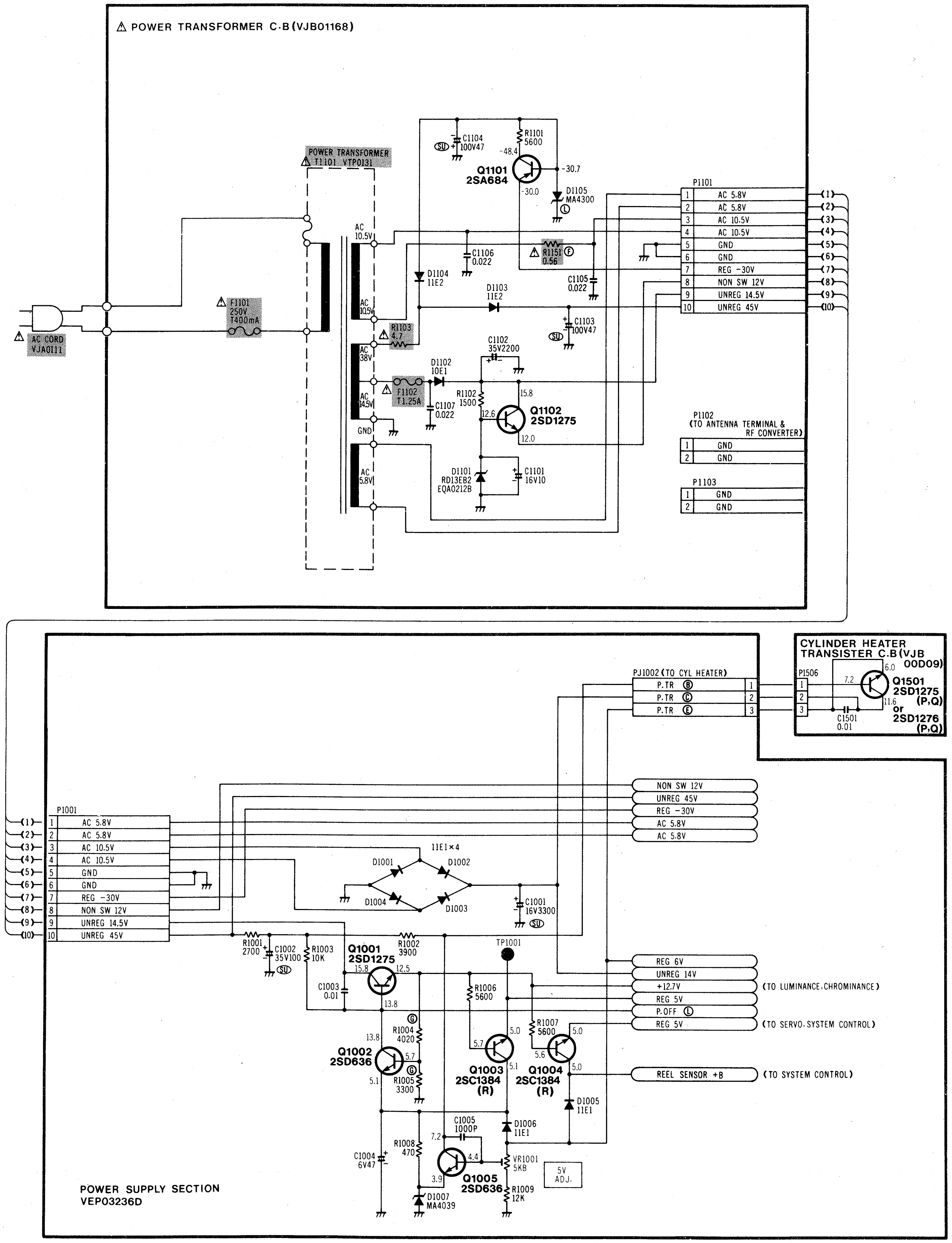
Next Page:
LUMINANCE & CHROMINANCE Section

3-4. LUMINANCE & CHROMINANCE BLOCK DIAGRAM


LUMINANCE, CHROMINANCE PACK (VJB03232)
VIDEO OUT
PJ 3002
TO ANTENNA
VIDEO OUT
Q3009
AMP
FROM SERVO
ARTIFICIAL V-SYNC
VIDEO IN
PJ 3001
FROM TV DEMODULATOR
VIDEO IN
TUNER
CAMERA
THIS SWITCH IS BUILT IN THE BNC CONNECTOR. WHEN CONECT THE BNC CONNECTOR, RF VIDEO SIGNAL IS CUT OFF.
FROM TIMER
PICTURE CONTROL
FROM SERVO
VSS
FROM SERVO
SERCH Ⓛ
LUMINANCE & CHROMINANCE PACK - ㉞
0.5V/20μsec.div. 1.0Vp-p
Q302
BUFFER
IC301
(VEFY007)
AGC
SUB CLAMP
EE AMP
E.E.
V.V.
HSS
VIDEO SIGNAL
4 4.43 (MHz)
LUMINANCE SIGNAL
4MHz
FL301
4MHz L.P.F
CHROMA MIX
CLAMP
HSS
-20dB
-10dB
0dB
0.1 0.5 1 2 3 4 5 (MHz)
N.L EMPHASIS/DEEMPHASIS
MAIN EMPHASIS
100K 500K 2M (Hz)
MAIN ENPHASIS
WHITE/DARK CLIP
SYNC TIP
WHITE LEVEL
FM MODURATION
FM MODULATOR
FM SIGNAL
SYNC SEPA
NOISE CANCELLAR
P.B. AMP
PICTURE CONTROL
DE EMPHASIS
NOISE CANCELLAR
DEF AMP
DEMODU
DEMODU
FL302
L.P.F
LUMINANCE SIGNAL
4MHz
FL302
L.P.F
DOUBLE LIMITER
DROP OUT CONPENSATOR
1H DELAY
DL301
HEAD AMP OUT PUT
(RF SIGNAL) 0.5VP-P
Q304
(SEARCH Ⓛ :ON)
QR301
(SYNC CONPENSATOR)
IC801- ㉞ PLAY
0.2V/20μsec. div. 3.4Vp-p
4MHz 4.43MHz
AMP
FL801
4.43MHz B.P.F
4.43MHz
627K 3.8M 4.8M (Hz)
L807, C813
L808, C814
L809, C815
627KHz L.P.F
627KHz
5.06MHz
FL801
5.06MHz B.P.F
0.36Vp-p 5.06MHz
P.B
REC
ACC
BALANCED MODULATOR 1
P.B :ON
DL801
2H DELAY LINE
Q801
BUFFER
REC OUT AMP
P.B OUT AMP
COLOUR KILLER SW
REC
B/W
P.B
AMP
KILLER PHASE COMPARATOR
IC801- ⑰ REC
0.5V/20μsec.div. 1.0Vp-p
IC801- ⑰ PLAY
0.5V/20μsec.div. 0.7Vp-p
C804, C805
L803, L804
4.43MHz B.P.F
1MHz 0.5MHz
QR801
(COLOUR Ⓗ :ON)
X801
4.433619 MHz
Q803
BUFFER
0.5Vp-p 4.43MHz
Q802
(EE Ⓗ EXREC Ⓗ :ON)
D801
627KHz ROTATIONAL SIGNAL
BALANCED MODULATOR 2
REC X'TAL VCO
P.B X'TAL OSC
BURST PHASE COMPENSATOR
AFC PHASE COMPARATOR
5.02MHz VCO
REC
APC PHASE COMPARATOR
P.B
FREQUENCY DETECTOR
1/2
2.508MHz
1/4 DIVIDER
0° 90° 180° 270°
627KHz
PHASE POTATION
1/4 RING COUNTER
DIGITAL PLL
HSS
IC801 (VEFC009)
FL801
1.6MHz L.P.F
REC CHROMA
1.6MHz
FREQUENCY CONPENSATOR
C305, L304, Q301
VR3051
Q ADJ
VR3001
REC-Y
HEAD AMP
P3003 - P501
4.8Vp-p 25Hz
TP3001
Q8001
AMP
Q506
3.8M 4.8M
Q3008
AMP
H.P.F
L3002, C3005
L3003, C3055


LUMINANCE.CHROMINANCE PACK (VJB03232)
HEAD AMP PACK (VJB05061)
IC301 (VEFY007)
IC801 (VEFC009)
IC501
AGC
SUB CLAMP
EE AMP
CLAMP
CHROMA MIX
P.B. AMP
NOISE CANCELLAR
PICTURE CONTROL
N.L EMPHASIS/DEEMPHASIS
MAIN ENPHASIS
WHITE/DARK CLIP
FM MODULATOR
SYNC SEPA
DE EMPHASIS
NOISE CANCELLAR
DEMODU
DOUBLE LIMITER
DROP OUT CONPENSATOR
DEF AMP
1H DELAY
DL301
QR301 (SYNC CONPENSATOR)
HEAD AMP OUT PUT (RF SIGNAL) 0.5VP-P
FL301 4MHz L.P.F
FL302 L.P.F
LUMINANCE SIGNAL
4MHz
IC801-㉞ PLAY 0.2V/20μsec. div. 3.4Vp-p
IC801-⑰ REC 0.5V/20μsec.div. 1.0Vp-p
IC801-⑰ PLAY 0.5V/20μsec.div. 0.7Vp-p
627KHz L.P.F
L807,C813 L808,C814 L809,C815
627K 3.8M 4.8M(Hz)
FL801 5.06MHz B.P.F
0.16Vp-p 5.06MHz
FL801 4.43MHz B.P.F
4MHz 4.43MHz
AMP
ACC
BALANCED MODULATOR 1
BALANCED MODULATOR 2
REC OUT AMP
P.B OUT AMP
COLOUR KILLER SW
2H DELAY LINE
DL801
Q801 BUFFER
KILLER PHASE COMPARATOR
C804,C805 L803,L804 4.43MHz B.P.F
1MHz 0.5MHz
QR801
COLOUR Ⓗ:ON
Q803 BUFFER
X801 4.433619 MHz
0.5Vp-p 4.43MHz
Q802
(EEⒽ EXRECⒽ:ON)
D801
627KHz ROTATIONAL SIGNAL
REC X'TAL VCO
P.B X'TAL OSC
BURST PHASE COMPENSATOR
AFC PHASE COMPARATOR
APC PHASE COMPARATOR
5.02MHz VCO
FREQUENCY DETECTOR
1/2
2.508MHz
1/4 DIVIDER
0° 90° 180° 270°
627KHz
PHASE POTATION
1/4 RING COUNTER
DIGITAL PLL
HSS
FL801 1.6MHz L.P.F
REC CHROMA
1.6MHz
FREQUENCY CONPENSATOR
C305, L304, Q301
VR3051 Q ADJ
VR3001 REC-Y
REG 5V FROM POWER
EE Ⓗ FROM SYSTEM CTL
4.43MHz TO SERVO
HEAD SW FROM SERVO
STILL Ⓗ FROM SYSTEM CTL
DELAYED REC 12V FROM SERVO
Q503 Q502
(REC Ⓗ:ON)
R509 R508
TP3004 TP3003
P3003 - P501
P002
1ST & 2ND AMP
HEAD SW
H SW
AGC DET
CHROMA AMP
PEAKING AMP
AGC AMP
Q506
4.8Vp-p 25Hz
TP3001
Q8001 AMP
Q504 BUFFER
Q505 AMP
L504 C519 PHASE COMPENSATOR
C552, L552 627KHz TRAP
3.8M 4.8M(Hz)
HEAD AMP OUTPUT (RF SIGNAL 120mVp-p)
627K 3.8M 4.8M Hz
Q501 (EXCEPT REC Ⓗ:ON)
VIDEO HEAD L'
VIDEO HEAD L
VIDEO HEAD R
620±5μm
R (70μm)
L' (70μm)
L (70μm)
REC Ⓗ FROM SYSTEM CTL
REG 6V FROM POWER
COLOUR Ⓗ FROM SW3051
+12.7V FROM POWER
Q3008 AMP
627KHz
Q3001
QR3001
(REC Ⓗ:ON)
H.P.F
L3002, C3005 L3003, C3055
Q3003 MIX
Q3005, Q3006 REC AMP
H.P.F REMOVES FM SIGNAL AND NOISE COMPONENTS AROUND CHROMA SIGNAL AREAS BEFORE CHROMA MIXING.
FM SIGNAL
MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
5.06MHz PHASE ROTATIONAL SIGNAL PATH IN REC MODE
5.06MHz PHASE ROTATIONAL SIGNAL PATH IN PLAYBACK MODE

3-5. POWER SUPPLY SCHEMATIC DIAGRAM

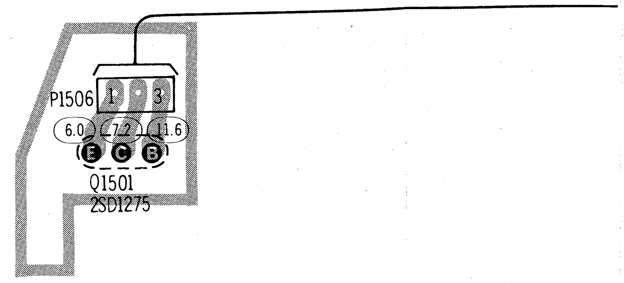

⚠ POWER TRANSFORMER C-B (VJB01168)
POWER TRANSFORMER
⚠ T1101 VTP0131
⚠ AC CORD VJA0111
⚠ F1101 250V T400mA
C1104 100V47
R1101 5600
Q1101 2SA684
D1105 MA4300
D1104 11E2
C1106 0.022
⚠ R1151 0.56
C1105 0.022
D1103 11E2
C1103 100V47
R1103 4.7
C1102 35V2200
D1102 10E1
⚠ F1102 T1.25A
C1107 0.022
R1102 1500
Q1102 2SD1275
D1101 RD13EB2 EQA0212B
C1101 16V10
AC 10.5V
AC 38V
AC 14.5V
AC 5.8V
GND
P1101
AC 5.8V
AC 5.8V
AC 10.5V
AC 10.5V
GND
GND
REG -30V
NON SW 12V
UNREG 14.5V
UNREG 45V
P1102 (TO ANTENNA TERMINAL & RF CONVERTER)
GND
GND
P1103
GND
GND
CYLINDER HEATER TRANSISTER C.B (VJB 00D09)
P1506
Q1501 2SD1275 (P.Q) or 2SD1276 (P.Q)
C1501 0.01
PJ1002 (TO CYL HEATER)
P.TR Ⓑ
P.TR Ⓒ
P.TR Ⓔ
P1001
11E1×4
D1001
D1002
D1003
D1004
C1001 16V3300
NON SW 12V
UNREG 45V
REG -30V
AC 5.8V
AC 5.8V
R1001 2700
C1002 35V100
R1003 10K
Q1001 2SD1275
R1002 3900
C1003 0.01
TP1001
R1004 4020
Q1002 2SD636
R1005 3300
R1006 5600
Q1003 2SC1384 (R)
R1007 5600
Q1004 2SC1384 (R)
D1005 11E1
C1005 1000P
D1006 11E1
R1008 470
C1004 6V47
Q1005 2SD636
VR1001 5KB
5V ADJ.
R1009 12K
D1007 MA4039
REG 6V
UNREG 14V
+12.7V
REG 5V
P.OFF Ⓛ
REG 5V
REEL SENSOR +B
(TO LUMINANCE.CHROMINANCE)
(TO SERVO.SYSTEM CONTROL)
(TO SYSTEM CONTROL)
POWER SUPPLY SECTION
VEP03236D

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

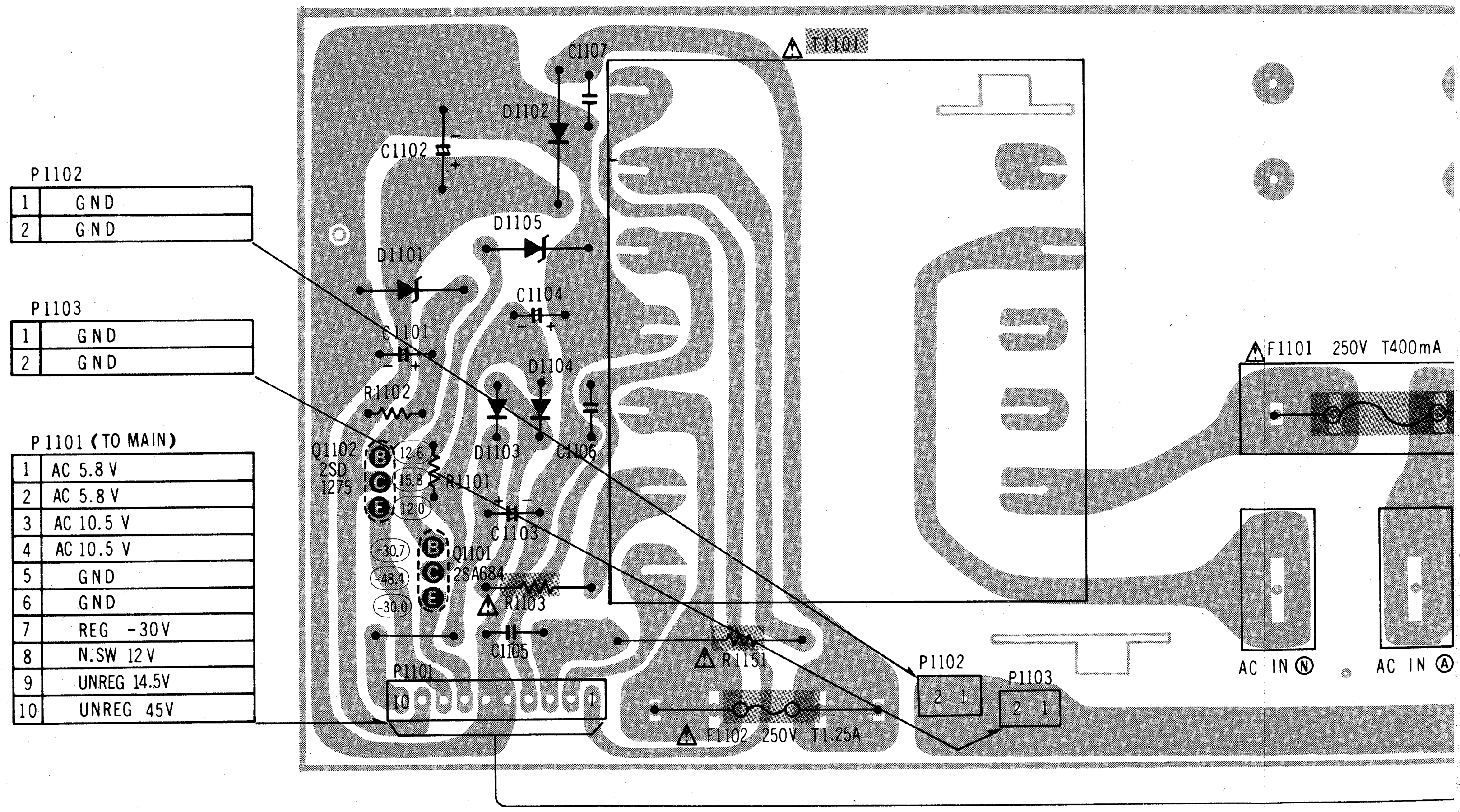
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

3-6. POWER SUPPLY Section in Main Circuit Board (VEP03236D)

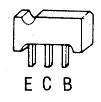
CYLINDER HEATER C.BOARD (VJB00D09)


P1506
1
3
6.0
7.2
11.6
Ⓔ Ⓒ Ⓑ
Q1501
2SD1275

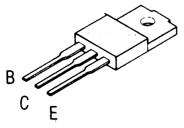
POWER TRANSFORMER C. BOARD (VJB01168)


P1102
GND
GND
P1103
GND
GND
P1101 (TO MAIN)
AC 5.8 V
AC 5.8 V
AC 10.5 V
AC 10.5 V
GND
GND
REG -30V
N.SW 12 V
UNREG 14.5V
UNREG 45V
⚠ T1101
C1107
D1102
C1102
D1105
D1101
C1104
C1101
D1104
R1102
D1103
C1106
Q1102 2SD 1275
12.6
15.8
12.0
R1101
C1103
-30.7
-48.4
-30.0
Q1101 2SA684
⚠ R1103
C1105
⚠ R1151
P1101
10
1
⚠ F1102 250V T1.25A
P1102
P1103
⚠ F1101 250V T400mA
AC IN Ⓝ
AC IN Ⓐ

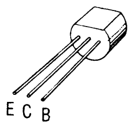
ICs & TRANSISTORs INFORMATION



2SD636

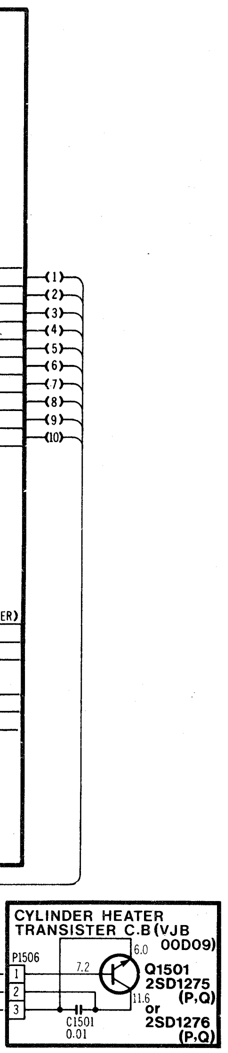


2SD1275



2SC1384

3-6. POWER SUPPLY Section in Main Circuit Board (VEP03236D)

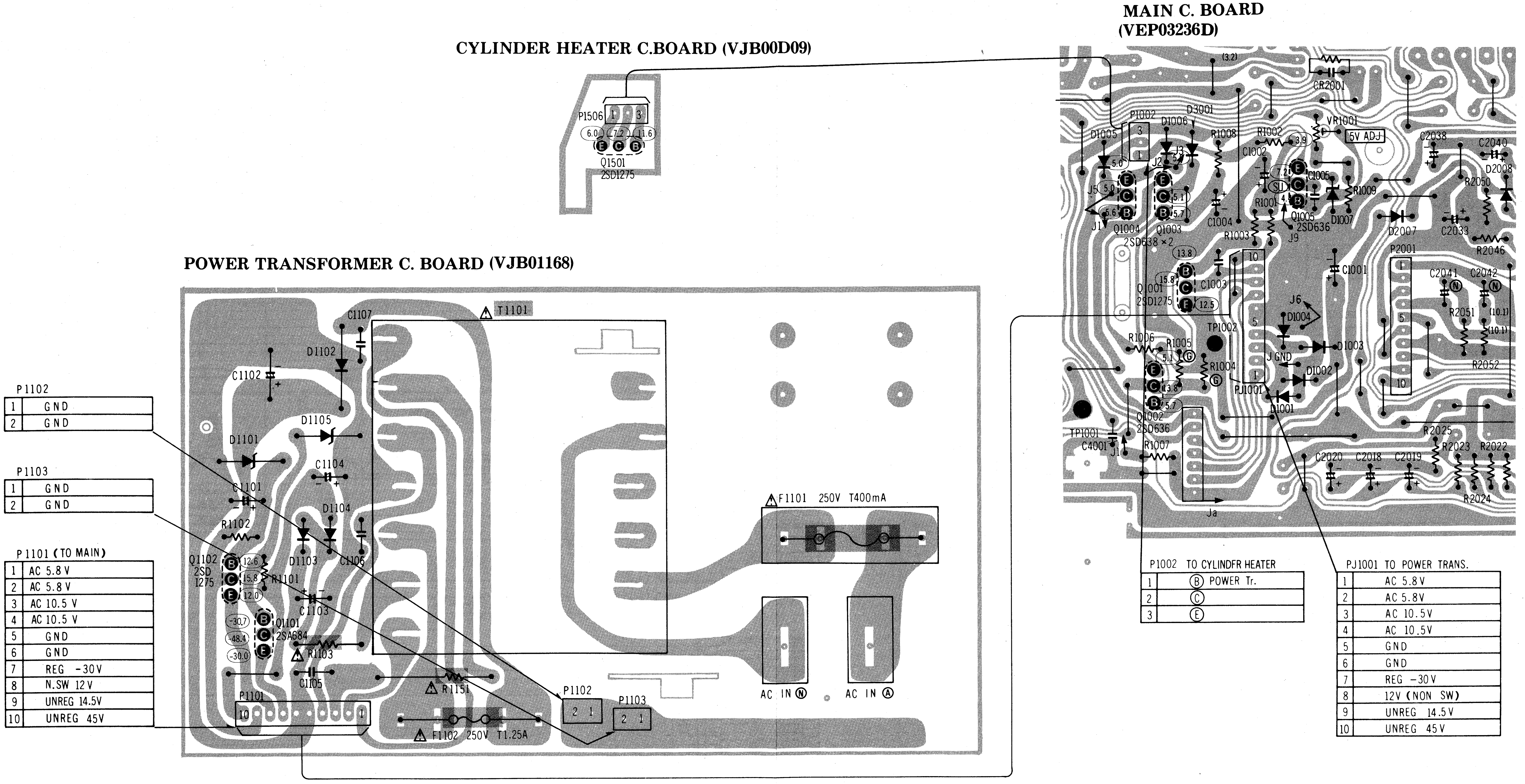

(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(10)
CYLINDER HEATER TRANSISTER C.B (VJB 00D09)
P1506
7.2
6.0
11.6
C1501 0.01
Q1501 2SD1275 (P,Q) or 2SD1276 (P,Q)

MINANCE.CHROMINANCE)

RVO.SYSTEM CONTROL)

STEM CONTROL)

CHARACTERISTICS FOR SAFETY.
ME TYPE.


CYLINDER HEATER C.BOARD (VJB00D09)
P1506
6.0
7.2
11.6
Q1501 2SD1275
POWER TRANSFORMER C. BOARD (VJB01168)
T1101
C1107
D1102
C1102
D1105
D1101
C1104
C1101
D1104
R1102
Q1102 2SD 1275
12.6
15.8
12.0
R1101
D1103
C1106
C1103
-30.7
-48.4
-30.0
Q1101 2SA684
R1103
C1105
R1151
P1101
F1102 250V T1.25A
P1102
P1103
F1101 250V T400mA
AC IN Ⓝ
AC IN Ⓐ
MAIN C. BOARD (VEP03236D)
CR2001
P1002
D3001
D1006
D1005
R1008
R1002
VR1001
5V ADJ
C2038
C2040
D2008
J2
J3
C1002
C1005
R1009
R2050
J5
R1001
Q1005 2SD636
D1007
J1
Q1004
Q1003
2SD638 ×2
C1004
R1003
J9
D2007
C2033
R2046
P2001
Q1001 2SD1275
C1003
C1001
C2041
C2042
J6
D1004
R2051
R2052
TP1002
R1006
R1005
R1004
D1003
J GND
D1002
PJ1001
D1001
Q1002 2SD636
TP1001
C4001
R1007
R2025
R2023
R2022
C2020
C2018
C2019
R2024
Ja

P1102

1	GND
2	GND

P1103

1	GND
2	GND

P1101 (TO MAIN)

1	AC 5.8 V
2	AC 5.8 V
3	AC 10.5 V
4	AC 10.5 V
5	GND
6	GND
7	REG -30V
8	N.SW 12V
9	UNREG 14.5V
10	UNREG 45V

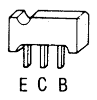
P1002 TO CYLINDFR HEATER

1	Ⓑ POWER Tr.
2	Ⓒ
3	Ⓔ

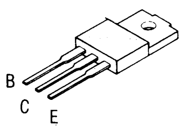
PJ1001 TO POWER TRANS.

1	AC 5.8V
2	AC 5.8V
3	AC 10.5V
4	AC 10.5V
5	GND
6	GND
7	REG -30V
8	12V (NON SW)
9	UNREG 14.5V
10	UNREG 45V

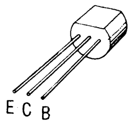
ICs & TRANSISTORs INFORMATION



2SD636



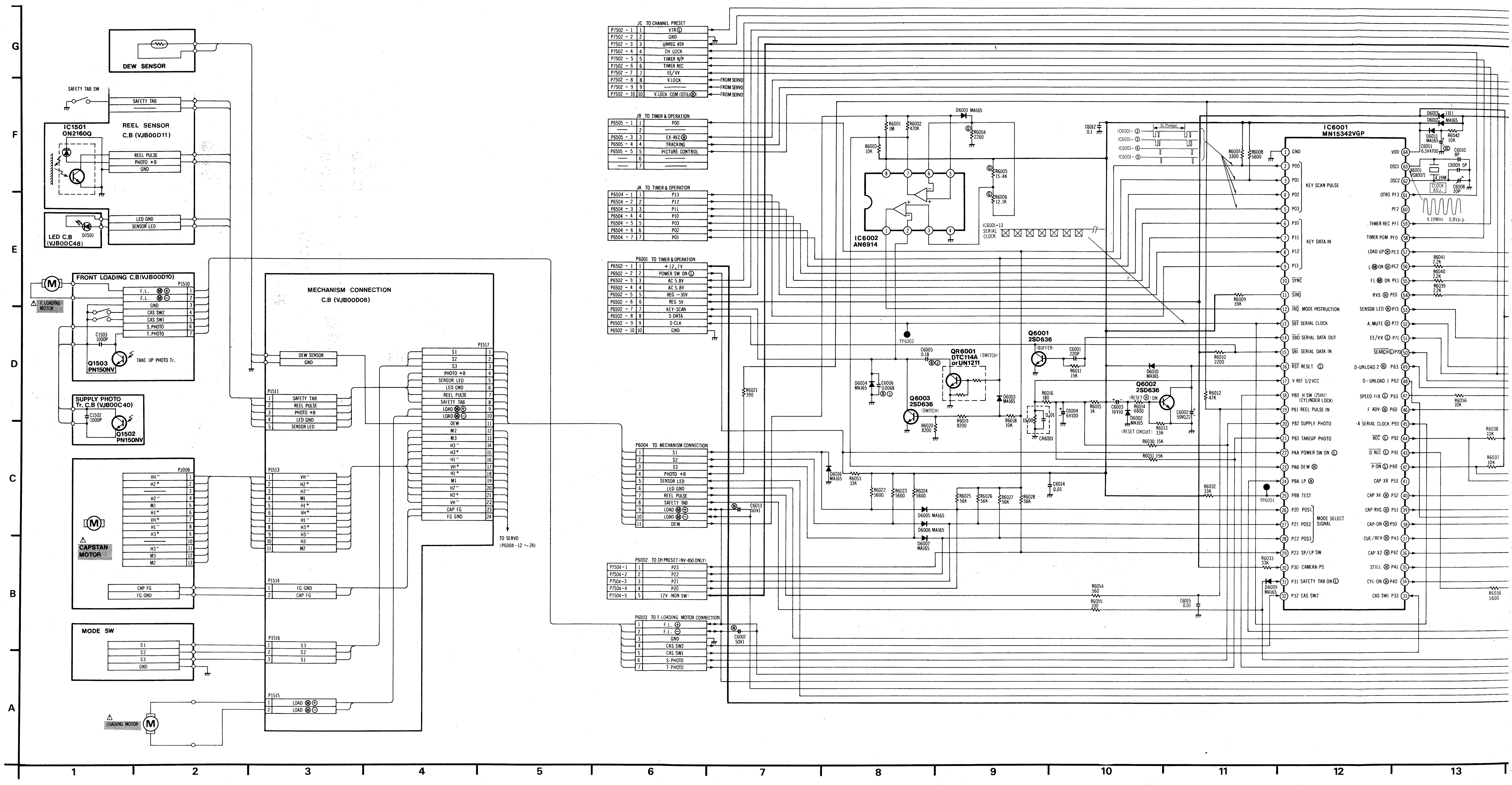
2SD1275

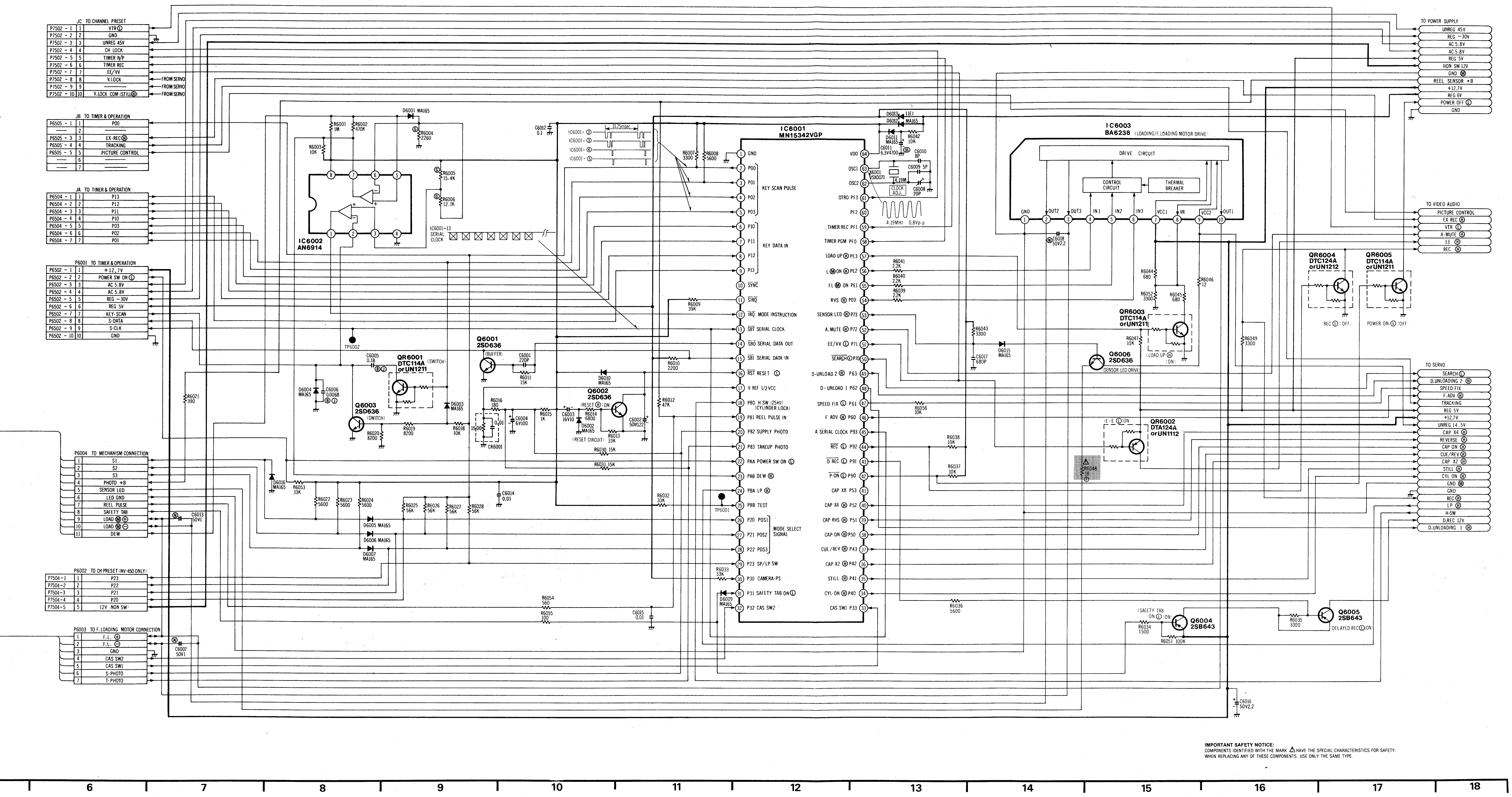


2SC1384

Next Page:
SYSTEM CONTROL Section

3-7. SYSTEM CONTROL SCHEMATIC DIAGRAM


G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
DEW SENSOR
SAFETY TAB SW
SAFETY TAB
IC1501
ON2160Q
REEL SENSOR
C.B (VJB00D11)
REEL PULSE
PHOTO +B
GND
LED GND
SENSOR LED
LED C.B
(VJB00C48)
D1501
FRONT LOADING C.B(VJB00D10)
P1510
F.L. Ⓜ⊕
F.L. Ⓜ⊖
CAS SW2
CAS SW1
S.PHOTO
T.PHOTO
F.LOADING MOTOR
C1503
1000P
Q1503
PN150NV
TAKE UP PHOTO Tr.
SUPPLY PHOTO
Tr. C.B (VJB00C40)
C1502
1000P
Q1502
PN150NV
PJ006
VH⁻
H2⁺
H2⁻
M1
H1⁺
VH⁺
H1⁻
H3⁺
H3⁻
M3
M2
CAPSTAN MOTOR
CAP FG
FG GND
MODE SW
S1
S2
S3
LOADING MOTOR
MECHANISM CONNECTION
C.B (VJB00D08)
P1511
P1513
P1514
P1515
P1516
P1517
LOAD Ⓜ⊕
LOAD Ⓜ⊖
DEW
TO SERVO
(P6004-12 ~24)
JC TO CHANNEL PRESET
P7502
VTR Ⓛ
UNREG 45V
CH LOCK
TIMER N/P
TIMER REC
EE/VV
V.LOCK
V.LOCK COM (STILL Ⓗ)
FROM SERVO
JB TO TIMER & OPERATION
P6505
P00
EX-REC Ⓗ
TRACKING
PICTURE CONTROL
JA TO TIMER & OPERATION
P6504
P13
P12
P11
P10
P03
P02
P01
P6001 TO TIMER & OPERATION
P6502
+12.7V
POWER SW ON Ⓛ
AC 5.8V
REG −30V
REG 5V
KEY-SCAN
S-DATA
S-CLK
P6004 TO MECHANISM CONNECTION
PHOTO +B
SENSOR LED
LED GND
REEL PULSE
SAFETY TAB
P6002 TO CH PRESET (NV-450 ONLY)
P7504
P23
P22
P21
P20
12V (NON SW)
P6003 TO F.LOADING MOTOR CONNECTION
F.L. ⊕
F.L. ⊖
S-PHOTO
T-PHOTO
C6013
50V1
C6007
50V1
IC6002
AN6914
R6001 1M
R6002 470K
R6003 10K
D6001 MA165
R6004 2260
R6005 15.4K
R6006 12.1K
IC6001-13
SERIAL CLOCK
TP6002
C6005 0.18
QR6001
DTC114A
or UN1211
(SWITCH)
D6004 MA165
C6006 0.0068
Q6003
2SD636
(SWITCH)
R6020 8200
R6019 8200
D6003 MA165
R6018 10K
Q6001
2SD636
(BUFFER)
C6001 220P
R6011 15K
CR6001
R6016 180
C6004 6V100
R6015 1K
C6003 16V10
R6014 6800
D6002 MA165
D6010 MA165
Q6002
2SD636
(RESET Ⓗ: ON
(RESET CIRCUIT)
R6013 33K
C6002 50V22
R6030 15K
R6031 15K
R6021 390
D6016 MA165
R6053 33K
R6022 5600
R6023 5600
R6024 5600
D6005 MA165
D6006 MA165
D6007 MA165
R6025 56K
R6026 56K
R6027 56K
R6028 56K
C6014 0.01
C6012 0.1
IC6001-②
IC6001-③
IC6001-④
IC6001-⑤
11.75msec
R6007 3300
R6008 5600
R6009 39K
R6010 2200
R6012 47K
R6032 33K
TP6001
R6033 33K
D6009 MA165
R6054 560
R6055 100
C6015 0.01
IC6001
MN15342VGP
GND
P00
P01
P02
P03
KEY SCAN PULSE
P10
P11
P12
P13
KEY DATA IN
SYNC
SIRQ
IRQ MODE INSTRUCTION
SBT SERIAL CLOCK
SBO SERIAL DATA OUT
SBI SERIAL DATA IN
RST RESET Ⓛ
V REF 1/2VCC
P80 H SW (25Hz) (CYLINDER LOCK)
P81 REEL PULSE IN
P82 SUPPLY PHOTO
P83 TAKEUP PHOTO
PAA POWER SW ON Ⓛ
PAB DEW Ⓗ
PBA LP Ⓗ
PBB TEST
P20 POS1
P21 POS2
P22 POS3
MODE SELECT SIGNAL
P23 SP/LP SW
P30 CAMERA-PS
P31 SAFETY TAB ON Ⓛ
P32 CAS SW2
VDD
OSC1
OSC2
OTRO PF3
PF2
TIMER REC PF1
TIMER PGM PF0
LOAD UP Ⓗ PE3
L Ⓜ ON Ⓗ PE2
FL Ⓜ ON PE1
RVS Ⓗ PE0
SENSOR LED Ⓗ P73
A.MUTE Ⓗ P72
EE/VV Ⓛ P71
SEARCH Ⓛ P70
D-UNLOAD 2 Ⓗ P63
D-UNLOAD 1 P62
SPEED FIX Ⓛ P61
F ADV Ⓗ P60
A SERIAL CLOCK P93
REC Ⓛ P92
D REC Ⓛ P91
P-ON Ⓛ P90
CAP X8 P53
CAP X4 Ⓗ P52
CAP RVS Ⓗ P51
CAP-ON Ⓗ P50
CUE/REV Ⓗ P43
CAP X2 Ⓗ P42
STILL Ⓗ P41
CYL-ON Ⓗ P40
CAS SW1 P33
D6013 11E1
D6012 MA165
D6011 MA165
R6042 10K
C6011 6.3V4700
C6010 8P
C6009 5P
X6001 (SX0071)
4.19M
CLOCK ADJ.
C6008 20P
4.19MHz 0.8Vp-p
R6041 2.2K
R6040 2.2K
R6039 2.2K
R6056 10K
R6038 10K
R6037 10K
R6036 5600


JC TO CHANNEL PRESET
P7502 - 1 VTR Ⓛ
P7502 - 2 GND
P7502 - 3 UNREG 45V
P7502 - 4 CH LOCK
P7502 - 5 TIMER N/P
P7502 - 6 TIMER REC
P7502 - 7 EE/VV
P7502 - 8 V.LOCK
P7502 - 10 V.LOCK COM (STILL Ⓗ)
FROM SERVO
JB TO TIMER & OPERATION
P6505 - 1 P00
P6505 - 3 EX-REC Ⓗ
P6505 - 4 TRACKING
P6505 - 5 PICTURE CONTROL
JA TO TIMER & OPERATION
P6504 - 1 P13
P6504 - 2 P12
P6504 - 3 P11
P6504 - 4 P10
P6504 - 5 P03
P6504 - 6 P02
P6504 - 7 P01
P6001 TO TIMER & OPERATION
P6502 - 1 +12.7V
P6502 - 2 POWER SW ON Ⓛ
P6502 - 3 AC 5.8V
P6502 - 4 AC 5.8V
P6502 - 5 REG −30V
P6502 - 6 REG 5V
P6502 - 7 KEY-SCAN
P6502 - 8 S-DATA
P6502 - 9 S-CLK
P6502 - 10 GND
P6004 TO MECHANISM CONNECTION
S1
S2
S3
PHOTO +B
SENSOR LED
LED GND
REEL PULSE
SAFETY TAB
LOAD Ⓜ⊕
LOAD Ⓜ⊖
DEW
P6002 TO CH PRESET (NV-450 ONLY)
P7504-1 P23
P7504-2 P22
P7504-3 P21
P7504-4 P20
P7504-5 12V (NON SW)
P6003 TO F.LOADING MOTOR CONNECTION
F.L. ⊕
F.L. ⊖
GND
CAS SW2
CAS SW1
S-PHOTO
T-PHOTO
IC6002 AN6914
D6001 MA165
R6001 1M
R6002 470K
R6003 10K
R6004 2260
R6005 15.4K
R6006 12.1K
C6012 0.1
IC6001-13 SERIAL CLOCK
IC6001 MN15342VGP
GND
P00
P01
P02
P03
KEY SCAN PULSE
P10
P11
P12
P13
KEY DATA IN
SYNC
SIRQ
IRQ MODE INSTRUCTION
SBT SERIAL CLOCK
SBO SERIAL DATA OUT
SBI SERIAL DATA IN
RST RESET Ⓛ
V REF 1/2VCC
P80 H SW (25Hz) (CYLINDER LOCK)
P81 REEL PULSE IN
P82 SUPPLY PHOTO
P83 TAKEUP PHOTO
PAA POWER SW ON Ⓛ
PAB DEW Ⓗ
PBA LP Ⓗ
PBB TEST
P20 POS1
P21 POS2
P22 POS3
MODE SELECT SIGNAL
P23 SP/LP SW
P30 CAMERA-PS
P31 SAFETY TAB ON Ⓛ
P32 CAS SW2
VDD
OSC1
OSC2
OTRO PF3
PF2
TIMER REC PF1
TIMER PGM PF0
LOAD UP Ⓗ PE3
L Ⓜ ON Ⓗ PE2
FL Ⓜ ON PE1
RVS Ⓗ PE0
SENSOR LED Ⓗ P73
A.MUTE Ⓗ P72
EE/VV Ⓛ P71
SEARCH Ⓛ P70
D-UNLOAD 2 Ⓗ P63
D-UNLOAD 1 P62
SPEED FIX Ⓛ P61
F ADV Ⓗ P60
A SERIAL CLOCK P93
REC Ⓛ P92
D REC Ⓛ P91
P-ON Ⓛ P90
CAP X8 P53
CAP X4 Ⓗ P52
CAP RVS Ⓗ P51
CAP-ON Ⓗ P50
CUE/REV Ⓗ P43
CAP X2 Ⓗ P42
STILL Ⓗ P41
CYL-ON Ⓗ P40
CAS SW1 P33
X6001 SX0071
CLOCK ADJ.
4.19MHz 0.8Vp-p
11.75msec
IC6003 BA6238 (LOADING/F.LOADING MOTOR DRIVE)
DRIVE CIRCUIT
CONTROL CIRCUIT
THERMAL BREAKER
GND OUT2 OUT3 IN1 IN2 IN3 VCC1 VR VCC2 OUT1
TO POWER SUPPLY
UNREG 45V
REG −30V
AC 5.8V
AC 5.8V
REG 5V
NON SW 12V
GND Ⓜ
REEL SENSOR +B
+12.7V
REG 6V
POWER OFF Ⓛ
GND
TO VIDEO AUDIO
PICTURE CONTROL
EX REC Ⓗ
VTR Ⓛ
A-MUTE Ⓗ
EE Ⓗ
REC Ⓗ
QR6004 DTC114A or UN1212
QR6005 DTC114A or UN1211
(REC Ⓛ : OFF)
POWER ON Ⓛ : OFF
QR6003 DTC114A or UN1211
(LOAD UP Ⓗ : ON)
Q6006 2SD636
(SENSOR LED DRIVE)
QR6002 DTA124A or UN1112
(E-E Ⓛ ON)
TO SERVO
SEARCH Ⓛ
D.UNLOADING 2 Ⓗ
SPEED FIX
F.ADV Ⓗ
TRACKING
REG 5V
+12.7V
UNREG 14.5V
CAP X4 Ⓗ
REVERSE Ⓗ
CAP ON Ⓗ
CUE/REV Ⓗ
CAP X2 Ⓗ
STILL Ⓗ
CYL ON Ⓗ
GND Ⓜ
GND
REC Ⓗ
LP Ⓗ
H-SW
D.REC 12V
D.UNLOADING 1 Ⓗ
Q6004 2SB643
(SAFETY TAB ON Ⓛ : ON)
Q6005 2SB643
(DELAYED REC Ⓛ : ON)
QR6001 DTC114A or UN1211 (SWITCH)
Q6003 2SD636 (SWITCH)
Q6001 2SD636 (BUFFER)
Q6002 2SD636 (RESET Ⓗ : ON)
(RESET CIRCUIT)
TP6001
TP6002
6
7
8
9
10
11
12
13
14
15
16
17
18

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

SYSTEM CONTROL ICs VOLTAGE CHART

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	4.6	4.5	5.0	5.0	4.7	5.0	5.0	5.0	3.9	5.0	5.0	4.9	0.4	4.8	5.0	2.9	4.8	0.2	3.2
PLAY	0	4.6	4.5	5.0	5.0	4.7	5.0	5.0	5.0	3.9	5.0	5.0	4.9	0.4	4.8	5.0	2.8	2.4	—	3.2
REC	0	4.5	4.5	5.0	5.0	4.7	5.0	5.0	5.0	3.9	5.0	5.0	4.9	0.4	4.8	5.0	2.8	2.4	—	3.2
F.F	0	4.5	4.5	5.0	5.0	4.7	5.0	5.0	5.0	3.9	5.0	5.0	4.9	0.4	4.8	5.0	2.8	4.8	2.2	3.2
REW	0	4.5	4.5	5.0	5.0	4.7	5.0	5.0	5.0	3.9	5.0	5.0	4.9	0.4	4.8	5.0	2.8	4.8	2.2	3.2

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	3.2	5.0	0	0	5.0	4.5	4.5	4.9	4.4	5.0	1.3	0	5.0	0.1	0	0	0	0	0	0
PLAY	3.2	5.0	0	0	5.0	4.5	4.9	4.5	4.4	5.0	1.3	0	5.0	5.0	0	0	0	5.0	0	0
REC	3.2	5.0	0	0	5.0	4.4	4.9	4.5	4.4	5.0	1.3	0	5.0	5.0	0	0	0	5.0	0	0
F.F	3.2	5.0	0	0	5.0	4.8	4.9	4.5	4.4	5.0	1.3	0	5.0	0.1	0	5.0	0	5.0	0	5.0
REW	3.2	5.0	0	0	5.0	4.8	4.9	4.5	4.4	5.0	1.3	0	5.0	0.1	0	5.0	0	5.0	5.0	5.0

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	0.1	13.5	3.7	4.9	0	5.0	0	0	5.0	0.1	0	0.2	0	0	0	4.9	0	0	0
PLAY	0	0.1	12.5	3.6	4.9	0	5.0	0	0	5.0	5.0	0	0.6	0	0	0	4.9	0	0	0
REC	0	0.1	0.3	0.1	4.9	0	5.0	0	0	5.0	0.1	0	0.6	0	0	0	4.9	0	0	0
F.F	0	0.1	12.5	3.6	4.9	0	5.0	0	0	5.0	0.1	0	0.6	0	0	0	4.9	0	0	0
REW	0	0.1	12.4	3.6	4.9	0	5.0	0	0	5.0	0.1	0	0.6	0	0	0	4.9	0	0	0

REF. NO.	IC6001																			
MODE	61	62	63	64																
STOP	0	1.7	2.2	5.0																
PLAY	0	1.7	2.2	5.0																
REC	5.0	1.7	2.2	5.0																
F.F	0	1.7	2.2	5.0																
REW	0	1.7	2.2	5.0																

REF. NO.	IC6002										IC6003									
MODE	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8	9	10
STOP	5.0	0	2.4	0	0	0.4	0	5.0			0	0.6	0.6	0	0	0	12.5	7.9	11.4	0.6
PLAY	5.0	0	2.4	0	0	0.4	0	5.0			0	0.6	0.6	0	0	0	12.5	7.9	10.6	0.6
REC	5.0	0	2.4	0	0	0.4	0	5.0			0	0.6	0.6	0	0	0	12.5	7.9	10.8	0.6
F.F	5.0	0	2.4	0	0	0.4	0	5.0			0	0.6	0.6	0	0	0	12.5	7.9	10.8	0.6
REW	5.0	0	2.4	0	0	0.4	0	5.0			0	0.6	0.6	0	0	0	12.5	7.9	10.3	0.6

SYSTEM CONTROL TRANSISTORs VOLTAGE CHART

REF. NO.	Q6001			Q6002			Q6003			Q6004			Q6005			Q6006		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	4.8	0.2	0	5.0	0	0	0	0.6	12.5	12.4	11.7	12.4	0	12.4	0.2	11.3	0.6
PLAY	0	4.8	0.2	0	5.0	0	0	0	0.6	12.5	12.4	11.7	12.4	0	12.4	0.6	11.3	1.0
REC	0	4.8	0.2	0	5.0	0	0	0	0.6	12.5	12.4	11.7	12.4	12.0	11.5	0.6	10.5	1.1
F.F	0	4.8	0.2	0	5.0	0	0	0	0.6	12.5	12.4	11.7	12.4	0	12.4	0.6	10.3	0.9
REW	0	4.8	0.2	0	5.0	0	0	0	0.6	12.5	12.4	11.7	12.4	0	12.4	0.6	10.8	0.9

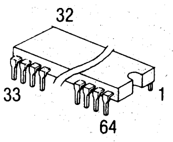
REF. NO.	Q6007																	
MODE	E	C	B															
STOP	7.9	12.5	8.3															
PLAY	7.9	12.5	8.3															
REC	7.9	12.5	8.3															
F.F	7.9	12.5	8.3															
REW	7.9	12.5	8.3															

REF. NO.	QR6001			QR6002			QR6003			QR6004			QR6005					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B			
STOP	0	0	4.5	5.0	4.9	0.1	0	0	4.9	0	0	3.6	0	13.7	0.1			
PLAY	0	0	4.5	5.0	0.1	5.0	0	0	4.9	0	0	3.6	0	13.7	0.1			
REC	0	0	4.5	5.0	4.9	0.1	0	0	4.9	0	4.4	0.1	0	13.7	0.1			
F.F	0	0	4.5	5.0	4.9	0.1	0	0	4.9	0	0	3.6	0	13.7	0.1			
REW	0	0	4.5	5.0	4.9	0.1	0	0	4.9	0	0	3.6	0	13.7	0.1			

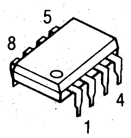
SYSTEM CONTROL SCHEMATIC	
Transistor	
Q1502	C-1
Q1503	D-1
Q6001	D-9
Q6002	D-10
Q6003	D-9
Q6004	B-15
Q6005	B-17
Q6006	D-15
Transistor & Resistor	
QR6001	D-9
QR6002	C-15
QR6003	D-15
QR6004	E-17
Integrated Circuit	
IC1501	F-1
IC6001	F-12
IC6002	E-8
IC6003	F-15
Test Point	
TP6001	C-11
TP6002	D-8
TP6005	F-10
Adjustment	
C6008	F-13
Connector	
JA	E-6
JB	F-6
JC	G-6
P1510	E-2
P1511	D-3
P1513	C-3
P1514	B-3
P1515	A-3
P1516	B-3
P1517	D-5
P6001	E-6
P6002	B-6
P6003	B-6
P6004	C-6
PJ006	C-2

ADDRESS INFORMATION

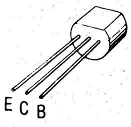
ICs & TRANSISTORs INFORMATION



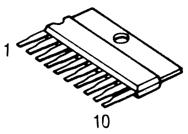
MN15342VGP



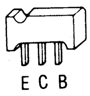
AN6914



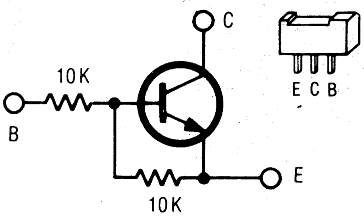
2SB643



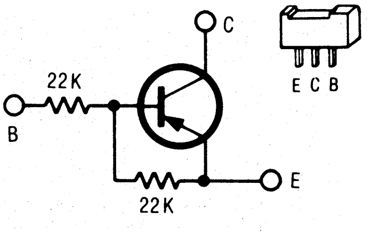
BA6238



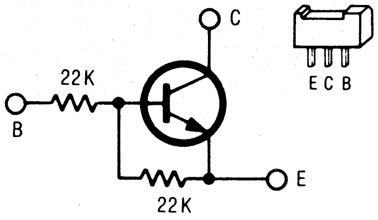
2SD636



DTC114A



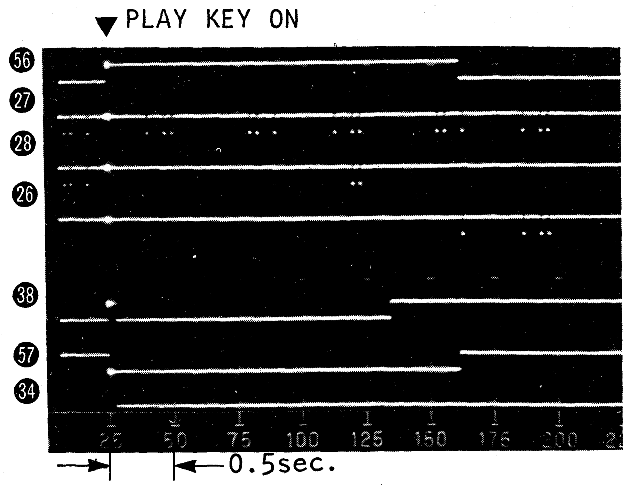
DTA124A



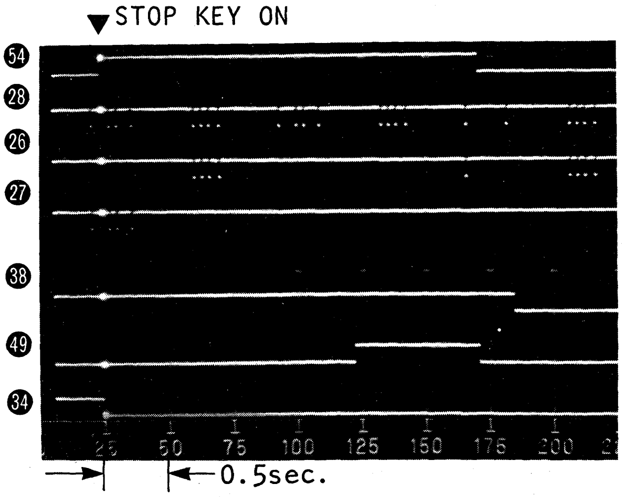
DTC124A

MICROPROCESSOR IC6001 (MN15342VGP) MODE BY MODE TIMING CHART

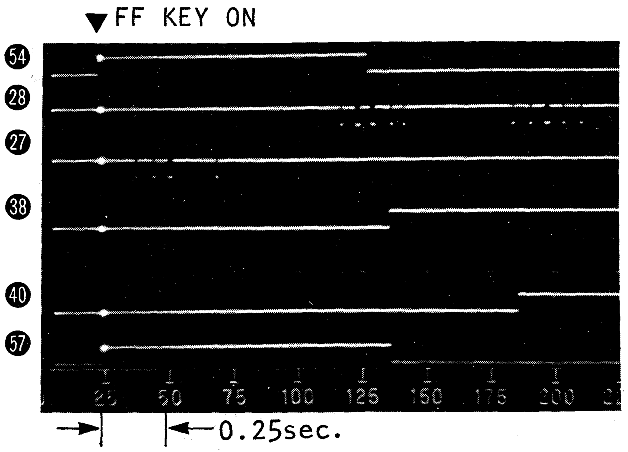
STOP → PLAY
IC Pin No.



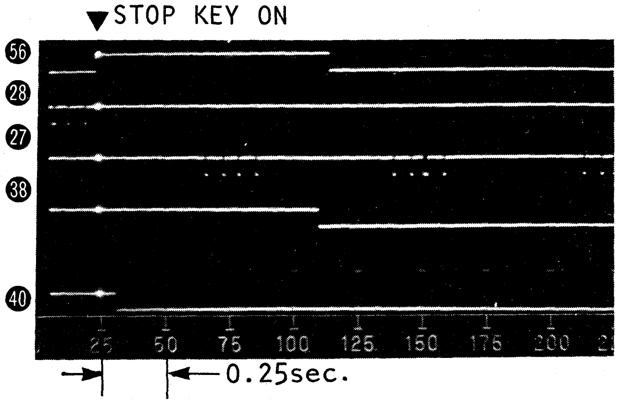
PLAY → STOP
IC Pin No.



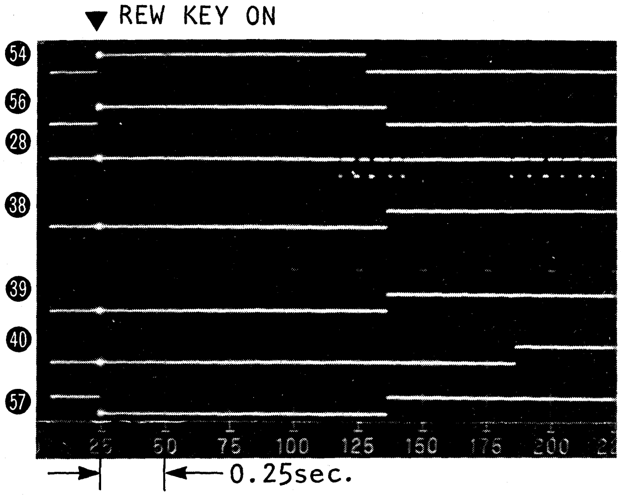
STOP → FF
IC Pin No.



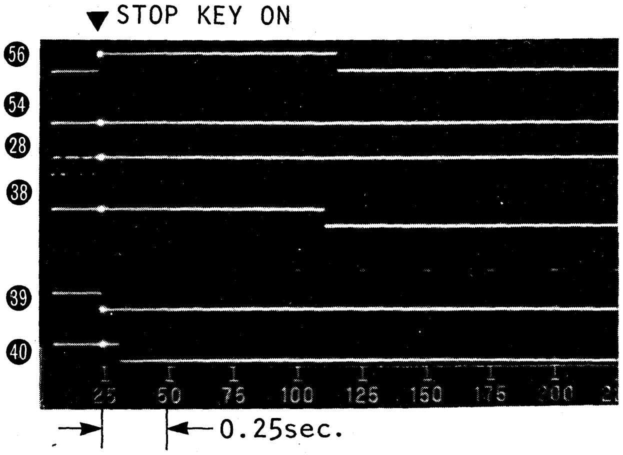
FF → STOP
IC Pin No.



STOP → REW
IC Pin No.

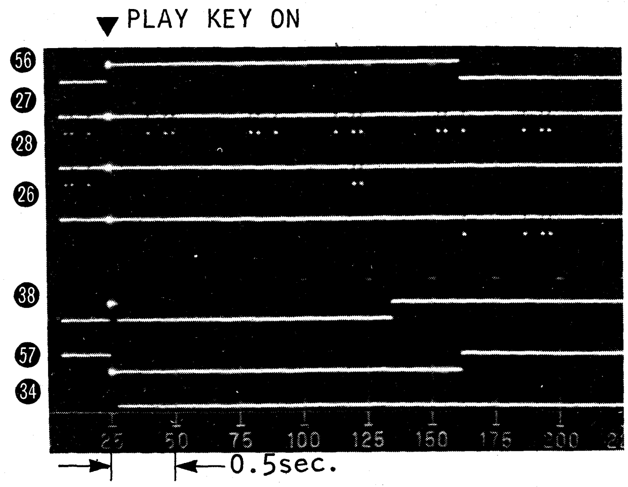


REW → STOP
IC Pin No.

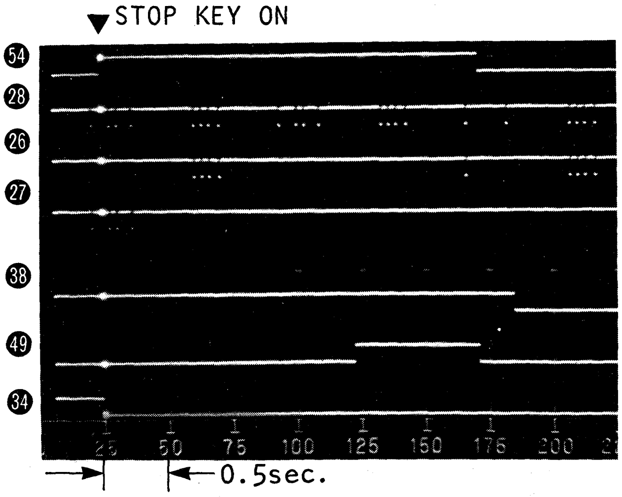


MICROPROCESSOR IC6001 (MN15342VGP) MODE BY MODE TIMING CHART

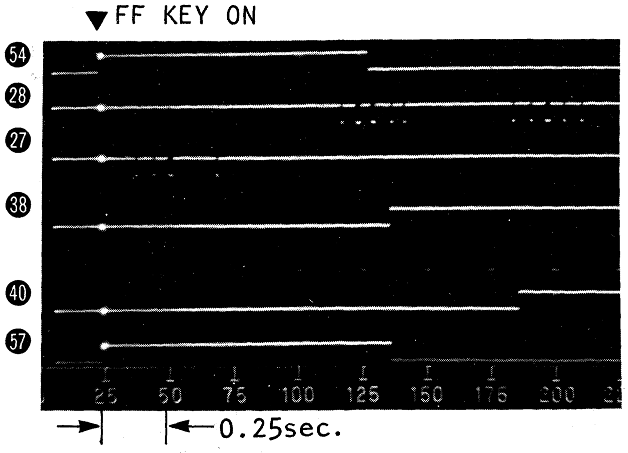
STOP → PLAY
IC Pin No.



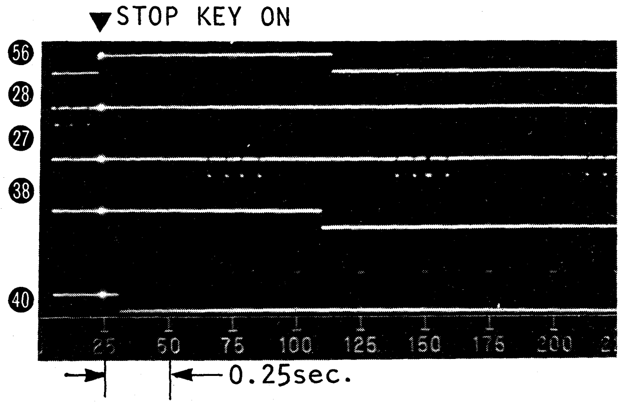
PLAY → STOP
IC Pin No.



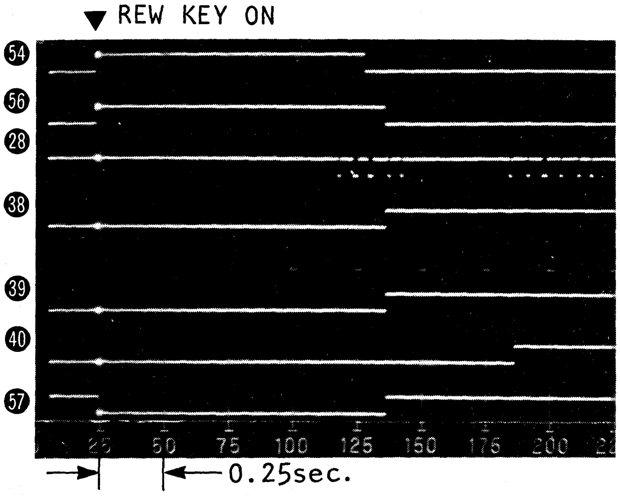
STOP → FF
IC Pin No.



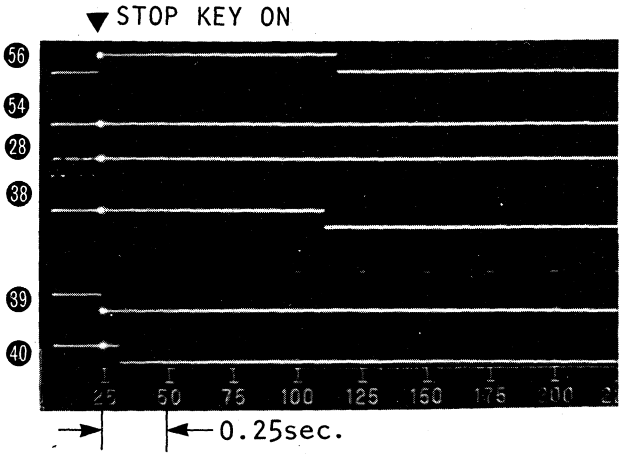
FF → STOP
IC Pin No.



STOP → REW
IC Pin No.



REW → STOP
IC Pin No.



3-8. SYSTEM CONTROL Section in Main Circuit Board (VEP03236D)

SYSTEM CONTROL CIRCUIT BOARD	
Transistor	
Q1502	C-10
Q1503	D-11
Q6001	C-9
Q6002	F-8
Q6003	E-8
Q6004	E-8
Q6005	E-7
Q6006	B-7
Transistor & Resistor	
QR6001	D-8
QR6002	E-7
QR6003	B-7
QR6004	E-8
QR6005	E-6
Integrated Circuit	
IC1501	E-12
IC6001	C-8
IC6002	E-8
IC6003	B-6
Test Point	
TP6001	B-8
TP6002	B-8
TP GND	B-7
TP GND	D-8
Adjustment	
C6008	C-8

ADDRESS INFORMATION

JB TO TIMER

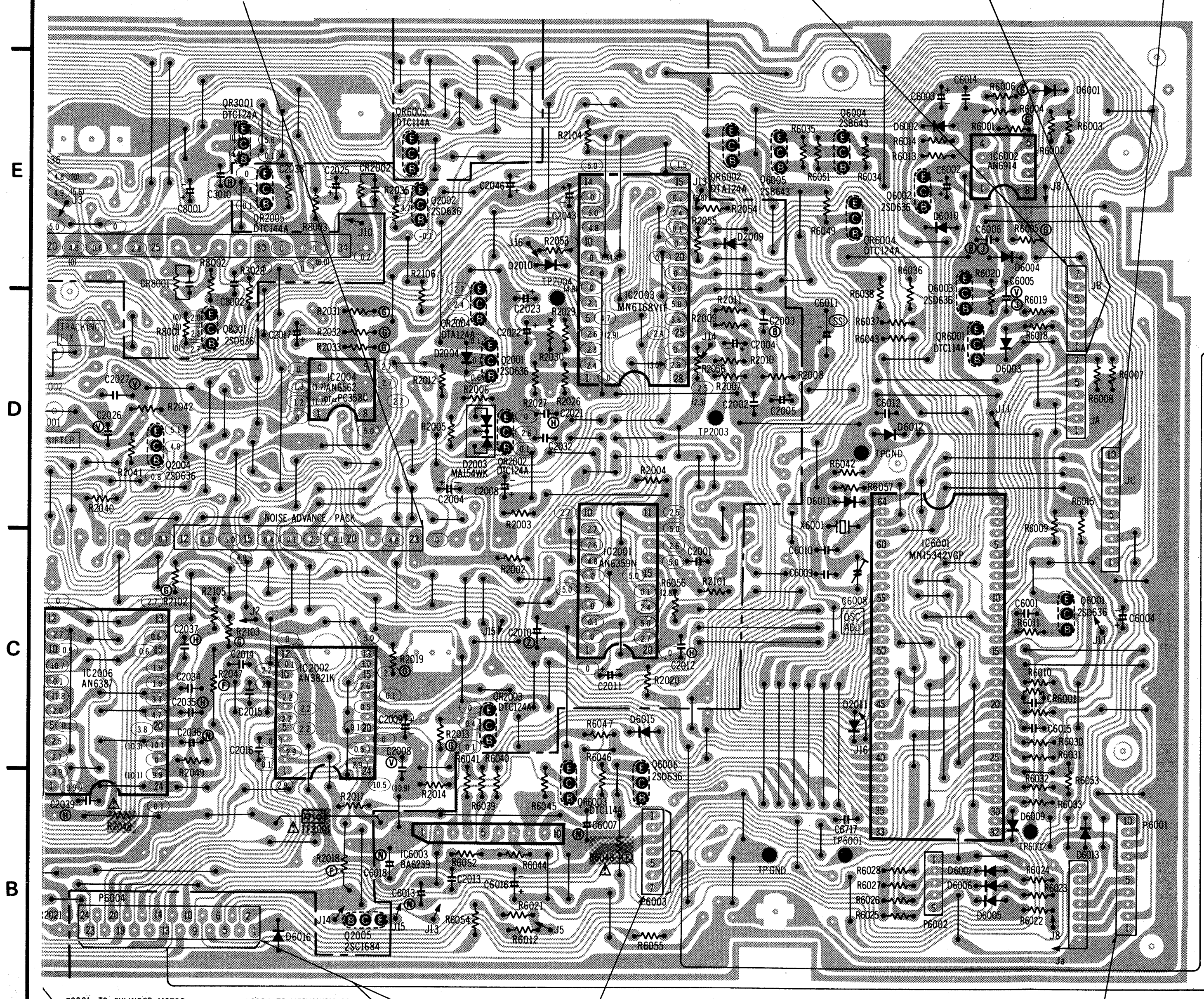
1	P00
2	―――
3	EX. RECⒽ
4	TRACKING
5	PIC CONT
6	INPUT SELECT
7	―――

JA TO TIMER

1	P13
2	P12
3	P11
4	P10
5	P03
6	P02
7	P01

JC TO CH SELECT

1	VTR Ⓛ
2	GND
3	UNREG 45V
4	CH LOCK
5	TIMER N/P
6	TIMER REC
7	EE/VV
8	V LOCK
9	―――
10	V LOCK (COM)(STILL Ⓗ)



F
E
D
C
B
A
5
6
7
8
9
TRACKING FIX
SIFTER
NOISE ADVANCE PACK
IC2006 AN6387
IC2002 AN3821K
IC2001 AN6359N
IC2003 MN6168VYK
IC6001 MN15342YEP
IC6002 AN6914
IC6003 BA6239
TP2003
TP GND
TP6001
TP6002
OSC ADJ
X6001
P6001
P6002
P6003
P6004
JA
JB
JC

P2001 TO CYLINDER MOTOR

1	M2
2	VH+
3	HES
4	M3
5	HEM
6	VH− (GND)
7	VM
8	$\overline{\text{HEM}}$
9	$\overline{\text{HES}}$
10	M1

P6004 TO MECHANISM CONNECTION / P6004

1	S1	2	S2
3	S3	4	PHOTO +B
5	SNS LED	6	LED GND
7	REEL PLS	8	SEFETY TAB
9	LOAD Ⓜ⊕	10	LOAD Ⓜ⊖
11	DEW	12	M2
13	M3	14	H3−
15	H3+	16	H1−
17	VH+	18	H1+
19	M1	20	H2−
21	H2+	22	VH−
23	CAP FG	24	FG GND

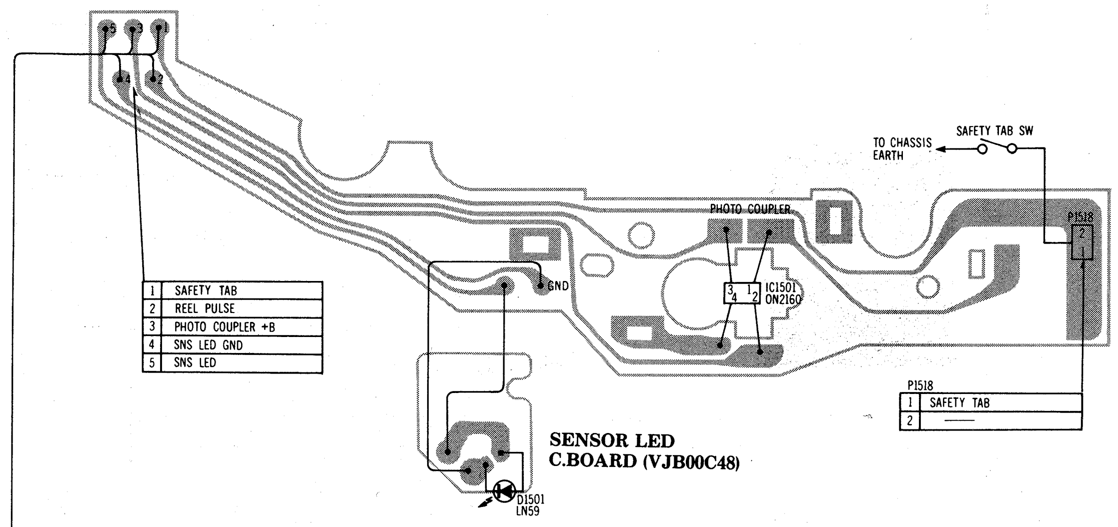
P6003 TO FRONT LOADING

1	FL Ⓜ⊕
2	FL Ⓜ⊖
3	GND
4	CAS SW2
5	CAS SW1
6	S PHOTO
7	T PHOTO

P6001 TO TIMER

1	12.7V
2	POWER SW
3	AC 5.8V
4	AC 5.8V
5	REG −30V
6	REG 5V
7	KEY SCAN
8	S.DATA
9	S.CLK
10	GND

REEL SENSOR C.BOARD (VJB00D11)



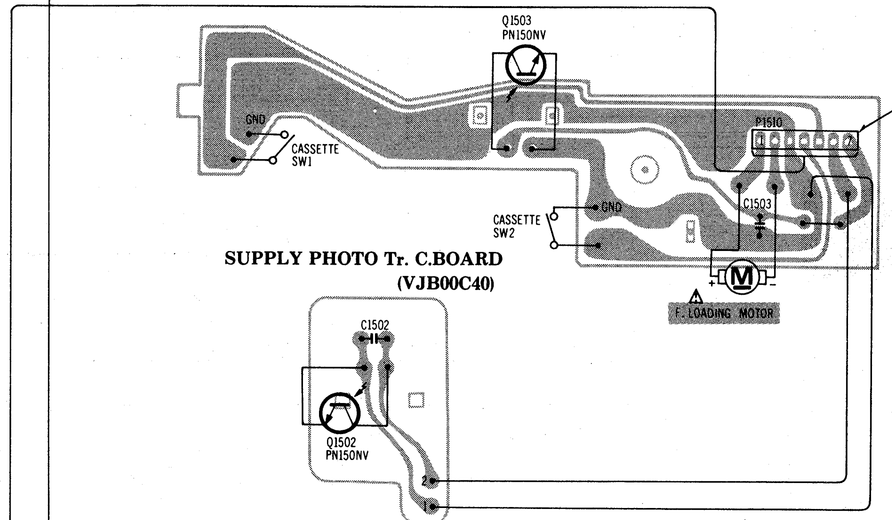
TO CHASSIS EARTH
SAFETY TAB SW
PHOTO COUPLER
GND
IC1501 ON2160
P1518
SENSOR LED C.BOARD (VJB00C48)
D1501 LN59

1	SAFETY TAB
2	REEL PULSE
3	PHOTO COUPLER +B
4	SNS LED GND
5	SNS LED

P1518

1	SAFETY TAB
2	―――

FRONT LOADING C.BOARD (VJB00D10)

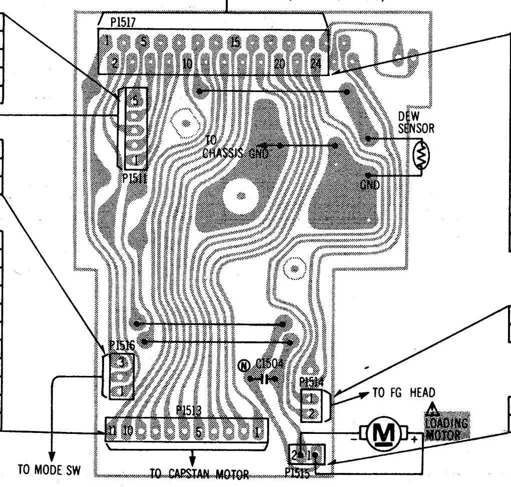


Q1503 PN150NV
GND
CASSETTE SW1
CASSETTE SW2
P1510
C1503
F. LOADING MOTOR
SUPPLY PHOTO Tr. C.BOARD (VJB00C40)
C1502
Q1502 PN150NV

P1510

1	FRONT LOADING Ⓜ⊕
2	FRONT LOADING Ⓜ⊖
3	GND
4	CASSETTE SW2
5	CASSETTE SW1
6	SUPPLY PHOTO Tr
7	TAKEUP PHOTO Tr

MECHANISM CONNECTION C.BOARD (VJB00D08)



P1517
1
5
15
2
10
20
24
P1511
TO CHASSIS GND
DEW SENSOR
GND
P1516
C1504
P1514
TO FG HEAD
LOADING MOTOR
P1513
P1515
TO MODE SW
TO CAPSTAN MOTOR

P1511

1	SAFETY TAB
2	REEL PULSE
3	THOTO +B
4	SNS LED GND
5	SNS LED

P1516

1	S3
2	S2
3	S1

P1513

1	VH−
2	H2+
3	H2−
4	M1
5	H1+
6	VH+
7	H1−
8	H3+
9	H3−
10	M3
11	M2

P1517

1	S1	2	S2
3	S3	4	THOTO +B
5	SNS LED	6	SNS LED GND
7	REEL PULSE	8	SAFETY TAB
9	LOAD ⊖	10	LOAD ⊕
11	DEW	12	M2
13	M3	14	H3−
15	H3+	16	H1−
17	VH+	18	H1+
19	M1	20	H2−
21	H2+	22	VH−
23	F-G1	24	F-G-GND

P1514

1	FG GND
2	FG

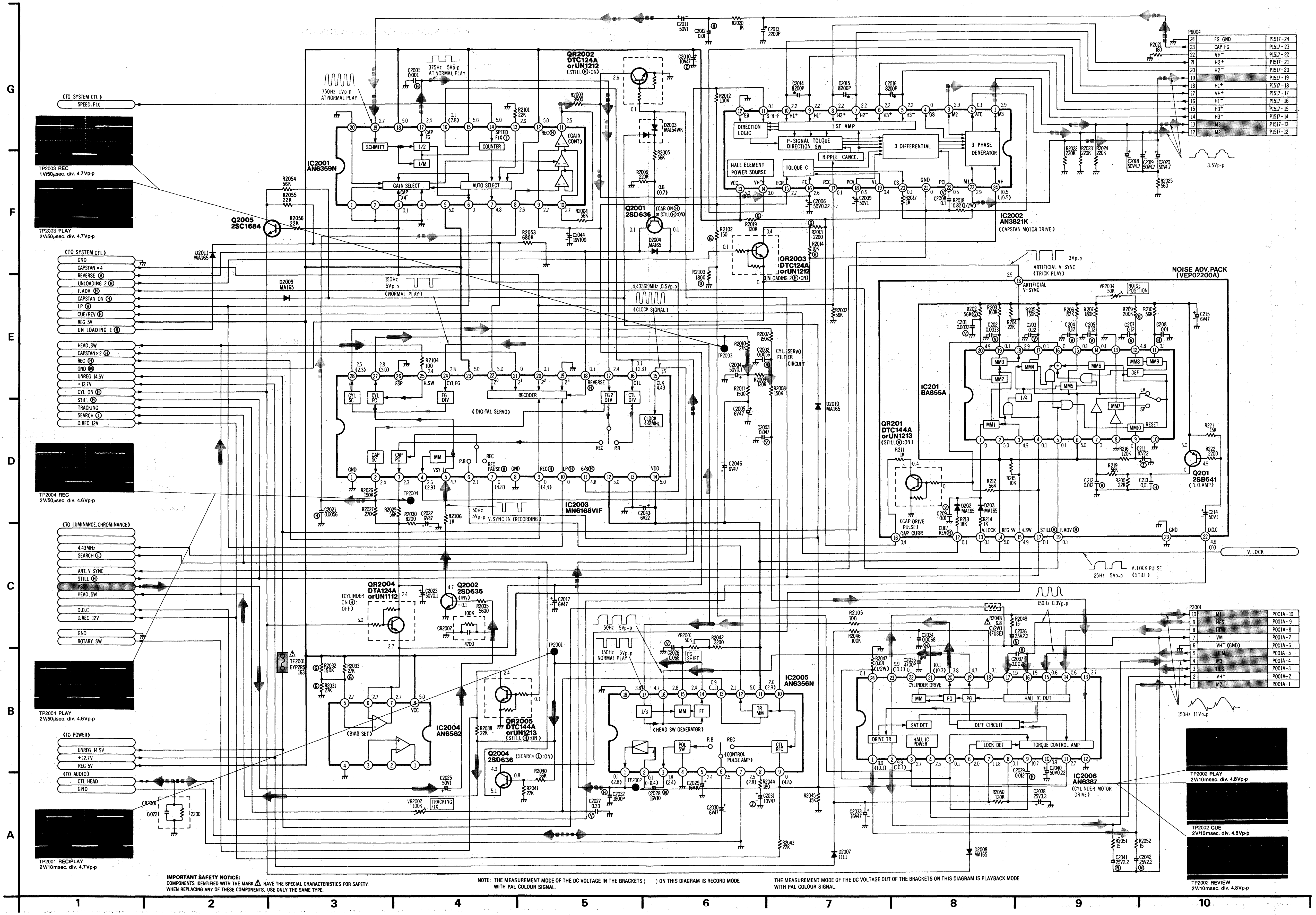
P1515

1	LOAD ⊕
2	LOAD ⊖

10
11
12
13

3-9. SERVO SCHEMATIC DIAGRAM

CYLINDER SERVO PHASE LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CAPSTAN SERVO SPEED LOOP


IC2001 AN6359N
SCHMITT
1/2
1/M
COUNTER
GAIN SELECT
AUTO SELECT
SPEED FIX Ⓛ
GAIN CONT
375Hz 5Vp-p AT NORMAL PLAY
750Hz 1Vp-p AT NORMAL PLAY
QR2002 DTC124A or UN1212 (STILL Ⓗ:ON)
Q2001 2SD636
Q2005 2SC1684
D2011 MA165
D2009 MA165
D2003 MA154WK
D2004 MA165
(TO SYSTEM CTL) SPEED.FIX
TP2003 REC 1V/50μsec. div. 4.7Vp-p
TP2003 PLAY 2V/50μsec. div. 4.7Vp-p
(TO SYSTEM CTL)
GND
CAPSTAN × 4
REVERSE Ⓗ
UNLOADING 2 Ⓗ
F.ADV Ⓗ
CAPSTAN ON Ⓗ
LP Ⓗ
CUE/REV Ⓗ
REG 5V
UN LOADING 1 Ⓗ
HEAD.SW
CAPSTAN × 2 Ⓗ
REC Ⓗ
GND Ⓗ
UNREG 14.5V
+12.7V
CYL ON Ⓗ
STILL Ⓗ
TRACKING
SEARCH Ⓛ
D.REC 12V
150Hz 5Vp-p (NORMAL PLAY)
4.433619MHz 0.5Vp-p
(CLOCK SIGNAL)
IC2003 MN6168VIF
(DIGITAL SERVO)
CYL SC
CYL PC
FG DIV
RECODER
FG2 DIV
CTL DIV
CLOCK 4.43MHz
CAP SC
CAP PC
MM
FSP
H.SW
CYL FG
REVERSE
CTL
CLK 4.43
VSY
P.B
REC
REC PAUSE Ⓗ
LP Ⓗ
6/8 Ⓗ
VDD
TP2004
50Hz 5Vp-p V.SYNC IN (RECORDING)
TP2004 REC 2V/50μsec. div. 4.6Vp-p
TP2004 PLAY 2V/50μsec. div. 4.6Vp-p
(TO LUMINANCE,CHROMINANCE)
4.43MHz
SEARCH Ⓛ
ART. V SYNC
STILL Ⓗ
VSS
HEAD. SW
D.O.C
D.REC 12V
GND
ROTARY SW
(TO POWER)
UNREG 14.5V
+12.7V
REG 5V
(TO AUDIO)
CTL HEAD
GND
TP2001 REC/PLAY 2V/10msec. div. 4.7Vp-p
QR2004 DTA124A or UN1112 (CYLINDER ON Ⓗ: OFF)
Q2002 2SD636 (INV)
TF2001 EYP2RS163
IC2004 AN6562
(BIAS SET)
QR2005 DTC144A or UN1213 (STILL Ⓗ:ON)
Q2004 2SD636 (SEARCH Ⓛ:ON)
VR2002 100K TRACKING FIX
TP2001
CYL. SERVO FILTER CIRCUIT
TP2003
IC2005 AN6356N
50Hz 5Vp-p
150Hz 5Vp-p NORMAL PLAY
PG SHIFT
MM
FF
1/3
TR MM
(HEAD SW GENERATOR)
POL SW
(CONTROL PULSE AMP)
CTL REC
TP2002
IC2002 AN3821K (CAPSTAN MOTOR DRIVE)
DIRECTION LOGIC
P-SIGNAL TOLQUE DIRECTION SW
1 ST AMP
3 DIFFERENTIAL
3 PHASE DENERATOR
RIPPLE CANCE.
HALL ELEMENT POWER SOURSE
TOLQUE C
QR2003 DTC124A or UN1212 (UNLOADING 2 Ⓗ:ON)
3.5Vp-p
P6004
24 FG GND P1517-24
23 CAP FG P1517-23
22 VH⁻ P1517-22
21 H2⁺ P1517-21
20 H2⁻ P1517-20
19 M1 P1517-19
18 H1⁺ P1517-18
17 VH⁺ P1517-17
16 H1⁻ P1517-16
15 H3⁺ P1517-15
14 H3⁻ P1517-14
13 M3 P1517-13
12 M2 P1517-12
3Vp-p ARTIFICIAL V-SYNC (TRICK PLAY)
NOISE ADV.PACK (VEP02200A)
NOISE POSITION
IC201 BA855A
MM1
MM2
MM3
MM4
MM5
MM6
MM7
MM8
MM9
MM10
DEF
1/4
RESET
QR201 DTC144A or UN1213 (STILL Ⓗ:ON)
Q201 2SB641 (D.O.AMP)
(CAP DRIVE PULSE)
CUE/REV Ⓗ
CAP CURR
REG 5V
H.SW
V.LOCK
STILL Ⓗ
F.ADV Ⓗ
GND
D.O.C
V.LOCK
25Hz 5Vp-p V.LOCK PULSE (STILL)
150Hz 0.3Vp-p
P2001
10 M1 P001A-10
9 HES P001A-9
8 HEM P001A-8
7 VM P001A-7
6 VH⁻ (GND) P001A-6
5 HEM P001A-5
4 M3 P001A-4
3 HES P001A-3
2 VH⁺ P001A-2
1 M2 P001A-1
150Hz 11Vp-p
IC2006 AN6387 (CYLINDER MOTOR DRIVE)
CYLINDER DRIVE
HALL IC OUT
SAT DET
DIFF CIRCUIT
DRIVE TR
HALL IC POWER
LOCK DET
TORQUE CONTROL AMP
D2007 11E1
D2008 MA165
D2010 MA165
TP2002 PLAY 2V/10msec. div. 4.8Vp-p
TP2002 CUE 2V/10msec. div. 4.8Vp-p
TP2002 REVIEW 2V/10msec. div. 4.8Vp-p
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

Back Page:
SYSTEM CONTROL Section

SERVO SCHEMATIC	
Transistor	
Q201	D-10
Q2001	F-5
Q2002	C-4
Q2004	B-4
Q2005	F-2
Transistor & Resistor	
QR201	D-8
QR2002	G-5
QR2003	F-7
QR2004	C-3
QR2005	B-4
Integrated Circuit	
IC201	E-8
IC2001	F-3
IC2002	F-8
IC2003	D-5
IC2004	B-4
IC2005	B-7
IC2006	A-9
Test Point	
TP2001	B-5
TP2002	A-5
TP2003	E-6
TP2004	D-4
Adjustment	
VR2001	B-6
VR2002	A-4
VR2004	E-9
Connector	
P2001	C-10
P6004	G-10

ADDRESS INFORMATION

3-10. SERVO Section in Main Circuit Board (VEP03236D)

P3003 TO HEAD AMP

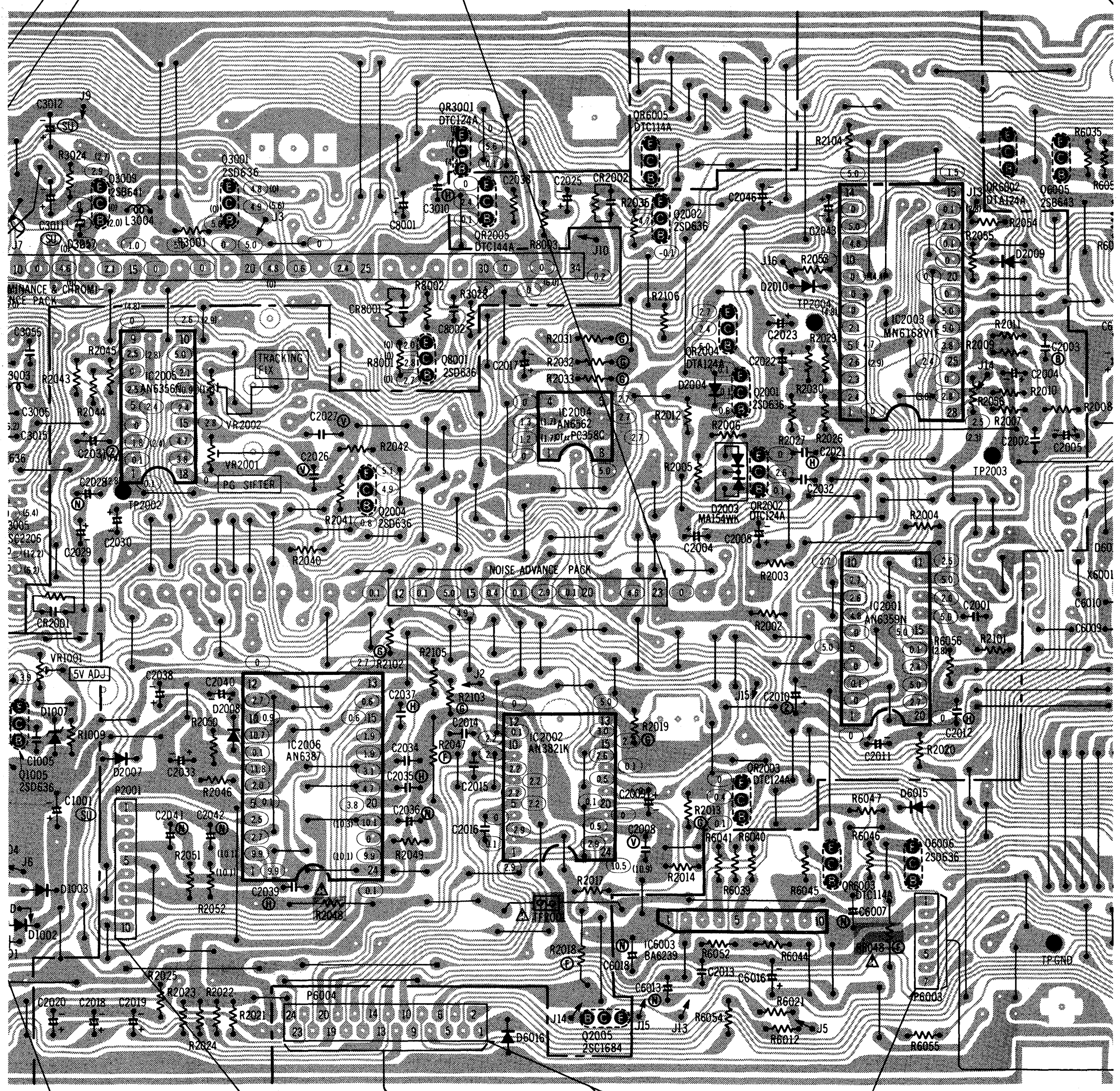
1	D REC 12V
2	REC CURR
3	H. SW
4	STILL Ⓗ
5	GND
6	EX REC Ⓗ
7	CHROMA IN
8	RF IN

NOISE ADVANCE PACK

12	CUE/REV
13	V LOCK
14	REG 5V
15	H.SW
16	CAP CURR
17	STILL Ⓗ
18	ART V SYNC
19	F. ADV
20	———
21	———
22	D.O.C
23	GND

JB TO TIMER

1	PØØ
2	———
3	EX. RECⒽ
4	TRACKING
5	PIC CONT
6	INPUT SELECT
7	———


NA
F
E
D
C
B
A
4
5
6
7
TRACKING
PG SHIFTER
NOISE ADVANCE PACK
5V ADJ
TP GND
P6004
Q2005
2SC1684
D6016

PJ1001 TO POWER TRANS.

1	AC 5.8V
2	AC 5.8V
3	AC 10.5V
4	AC 10.5V
5	GND
6	GND
7	REG −30V
8	12V (NON SW)
9	UNREG 14.5V
10	UNREG 45V

P2001 TO CYLINDER MOTOR

1	M2
2	VH+
3	HES
4	M3
5	HEM
6	VH− (GND)
7	VM
8	$\overline{\text{HEM}}$
9	$\overline{\text{HES}}$
10	M1

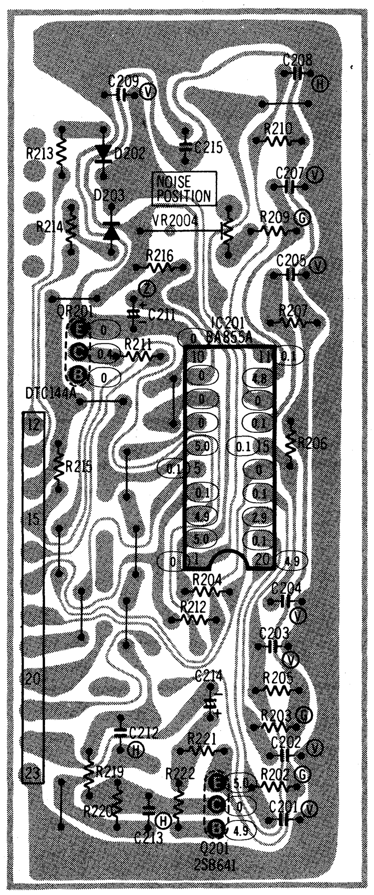
P6004 TO MECHANISM CONNECTION / P6004

1	S1	2	S2
3	S3	4	PHOTO +B
5	SNS LED	6	LED GND
7	REEL PLS	8	SEFETY TAB
9	LOAD Ⓜ⊕	10	LOAD Ⓜ⊖
11	DEW	12	M2
13	M3	14	H3−
15	H3+	16	H1−
17	VH+	18	H1+
19	M1	20	H2−
21	H2+	22	VH−
23	CAP FG	24	FG GND

P6003 TO FRONT LOADING

1	FL Ⓜ⊕
2	FL Ⓜ⊖
3	GND
4	CAS SW2
5	CAS SW1
6	S PHOTO
7	T PHOTO

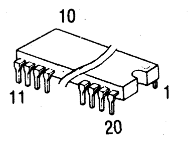
NOISE ADVANCE PACK CIRCUIT BOARD (VEP02200A)


NOISE POSITION
VR2004
IC201
BA855A
QR201
DTC144A
Q201
2SB641

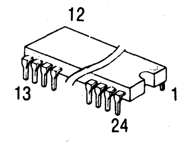
SERVO CIRCUIT BOARD	
Transistor	
Q2001	D-6
Q2002	E-6
Q2004	D-5
Q2005	B-6
Transistor & Resistor	
QR2002	D-6
QR2003	C-6
QR2004	D-6
QR2005	E-5
Integrated Circuit	
IC2001	C-7
IC2002	C-5
IC2003	D-7
IC2004	D-6
IC2005	D-4
IC2006	C-5
Test Point	
TP2001	E-3
TP2002	D-4
TP2003	D-7
TP2004	D-6
Adjustment	
VR2001	D-4
VR2002	D-4

ADDRESS INFORMATION

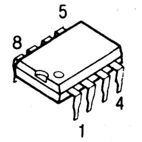
ICs & TRANSISTORs INFORMATION



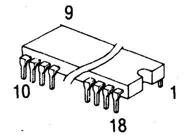
AN6359N
BA855A



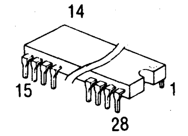
AN3821K
AN6387



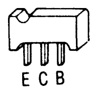
AN6562



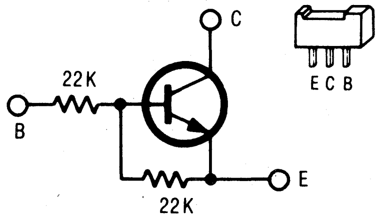
AN6356N



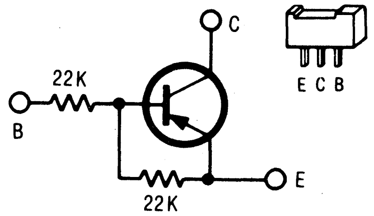
MN6168VIF



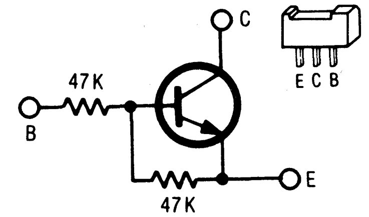
2SB641
2SD636


C
22K
B
E
22K
E C B

DTC124A

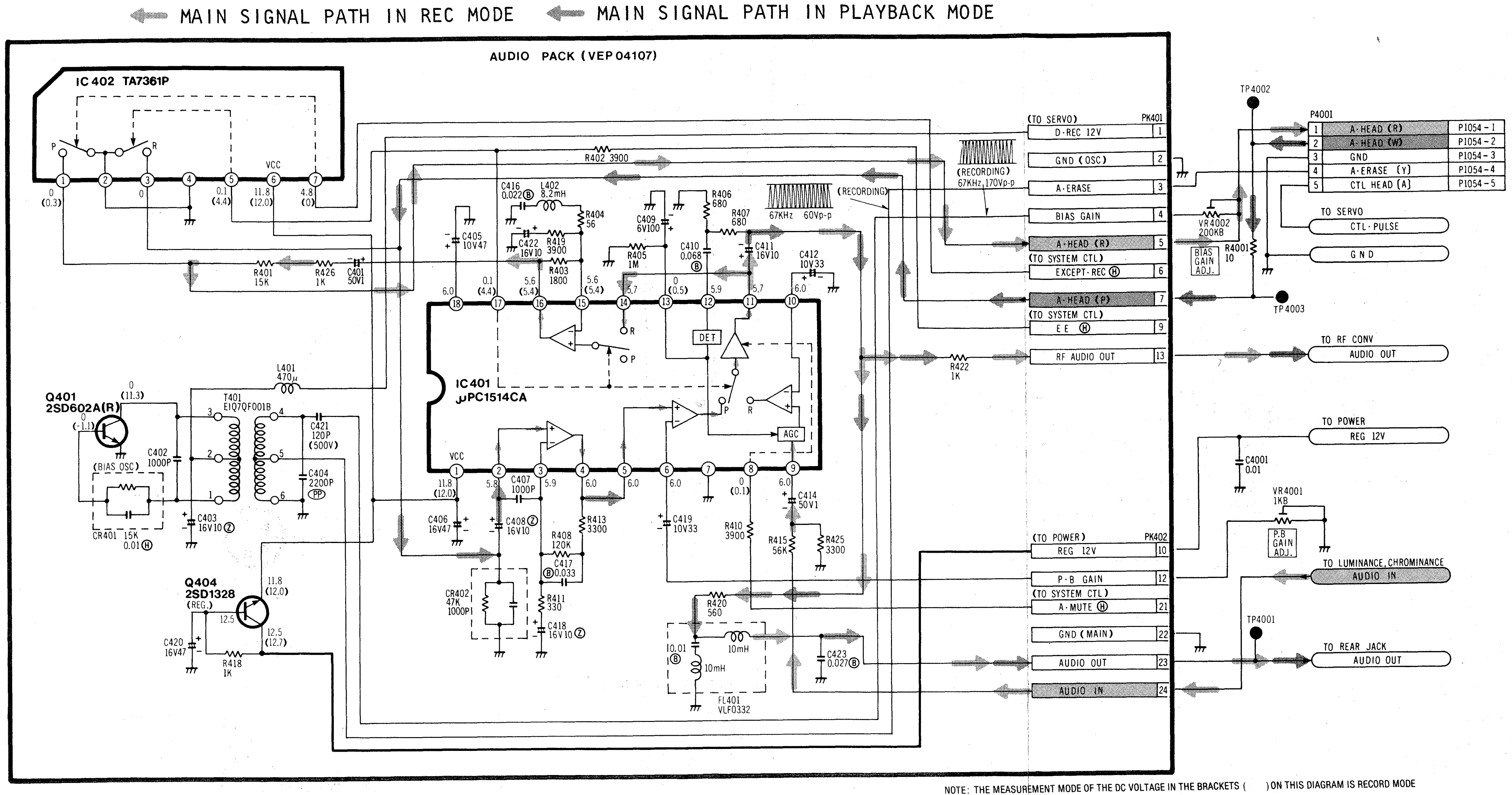

C
22K
B
E
22K
E C B

DTA124A


C
47K
B
E
47K
E C B

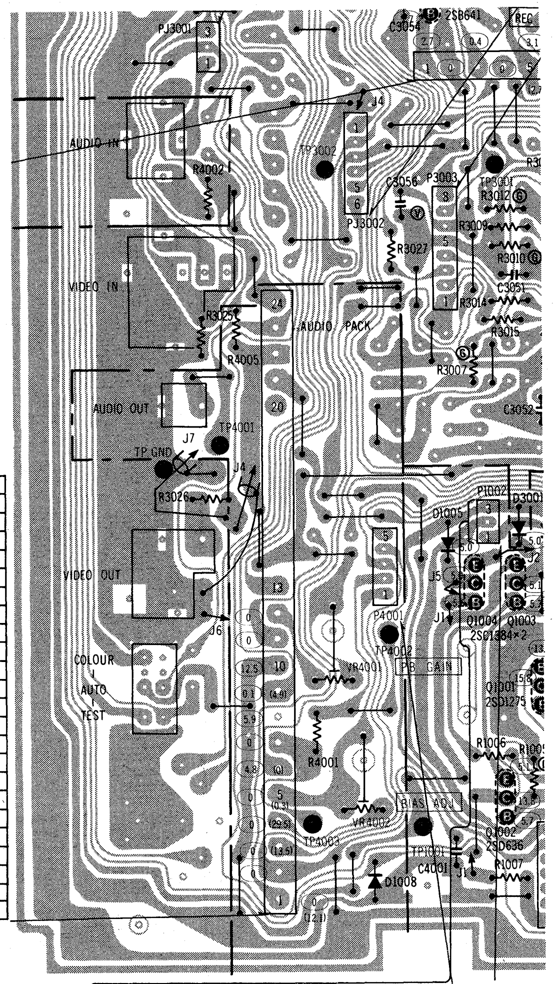
DTC144A

3-11. AUDIO SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO PACK (VEP04107)
IC402 TA7361P
IC401 μPC1514CA
Q401 2SD602A(R)
(BIAS OSC)
Q404 2SD1328 (REG.)
T401 EI07QF001B
L401 470μ
L402 8.2mH
FL401 VLF0332
R402 3900
R401 15K
R426 1K
C401 50V1
DET
AGC
(RECORDING) 67KHz 60Vp-p
(RECORDING) 67KHz,170Vp-p
(TO SERVO)
PK401
D-REC 12V
GND (OSC)
A-ERASE
BIAS GAIN
A-HEAD (R)
(TO SYSTEM CTL)
EXCEPT-REC Ⓗ
A-HEAD (P)
(TO SYSTEM CTL)
E E Ⓗ
RF AUDIO OUT
R422 1K
(TO POWER)
PK402
REG 12V
P·B GAIN
(TO SYSTEM CTL)
A·MUTE Ⓗ
GND (MAIN)
AUDIO OUT
AUDIO IN
TP4002
P4001
A-HEAD (R) P1054-1
A-HEAD (W) P1054-2
GND P1054-3
A-ERASE (Y) P1054-4
CTL HEAD (A) P1054-5
VR4002 200KB
BIAS GAIN ADJ.
R4001 10
TP4003
TO SERVO
CTL·PULSE
GND
TO RF CONV
AUDIO OUT
TO POWER
REG 12V
C4001 0.01
VR4001 1KB
P.B GAIN ADJ.
TO LUMINANCE, CHROMINANCE
AUDIO IN
TP4001
TO REAR JACK
AUDIO OUT

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

3-12. AUDIO Section in Main Circuit Board (VEP03236D)


AUDIO IN
VIDEO IN
AUDIO PACK
AUDIO OUT
VIDEO OUT
COLOUR
AUTO
TEST
TP GND
J7
J4
TP4001
TP4002
TP4003
R4001
VR4001
VR4002
P.B GAIN
BIAS ADJ.
P4001
PJ3001
PJ3002
D1008
C4001

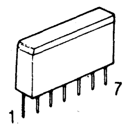
AUDIO PACK

1	D. REC 12V
2	GND (OSC)
3	A. ERASE
4	BIAS GAIN
5	A HEAD (R)
6	EX. REC Ⓗ
7	A. HEAD (P)
8	———
9	EE Ⓗ
10	REG 12V
11	———
12	P.B GAIN
13	RF AUDIO OUT
14	———
15	———
16	———
17	———
18	———
19	———
20	———
21	A. MUTE Ⓗ
22	GND (MAIN)
23	AUDIO OUT
24	AUDIO IN

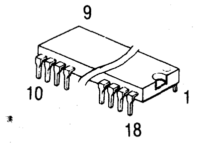
P4001 TO A/C HEAD

1	A. HEAD (R)
2	A. HEAD (W)
3	GND
4	A ERASE (Y)
5	CTL HEAD (A)

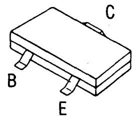
ICs & TRANSISTORs INFORMATION



TA7361P



μPC1514CA



2SD602A
2SD1328

Back Page:
SERVO Section

3-13. HEAD AMP PACK CIRCUIT BOARD (VEP05061)

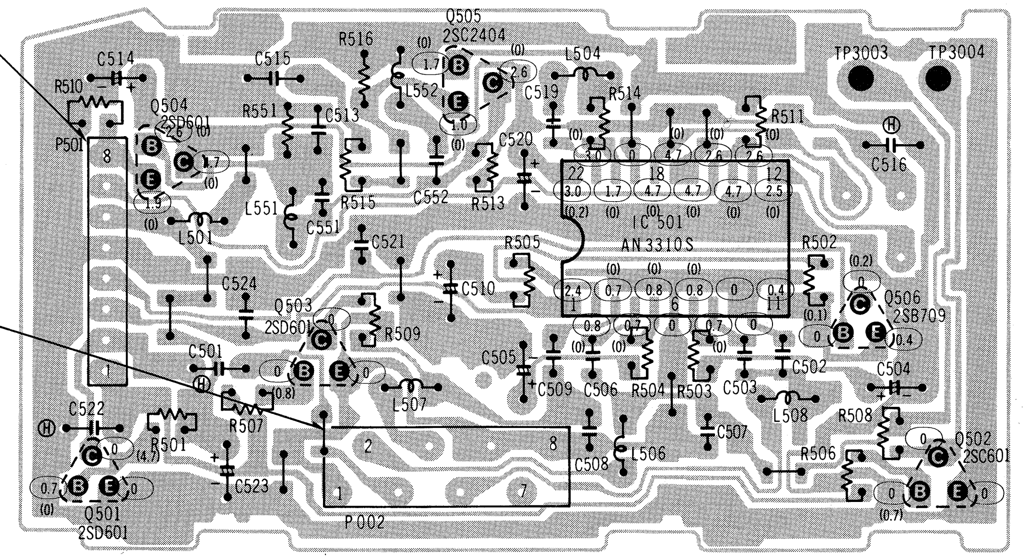
HEAD AMP PACK C. BOARD (VEP05061)

P501 (TO MAIN)

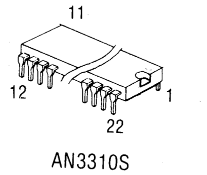
1	D. REC 12V
2	REC CURR.
3	H. SW
4	STILL Ⓗ
5	GND
6	EX. REC Ⓗ
7	CHROMA OUT
8	RF OUT

P002 (TO VIDEO HEAD)

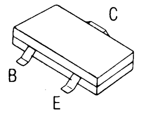
1	GND
2	L. HEAD (S)
3	COMMON
4	R. HEAD (S)
5	L'. HEAD (S)
6	L'. HEAD (F)
7	———
8	GND


Q505
2SC2404
R516
C514
C515
L504
TP3003
TP3004
R510
Q504
2SD601
R551
C513
L552
C519
R514
R511
P501
C520
C516
L551
R515
C551
C552
R513
IC 501
AN3310S
L501
C521
R505
R502
C524
C510
Q506
2SB709
Q503
2SD601
R509
C501
C505
C502
C504
C509
C506
R504
R503
C503
L507
C522
R507
L508
R508
Q502
2SC601
R501
C507
C523
C508
L506
R506
Q501
2SD601
P002

ICs & TRANSISTORs INFORMATION

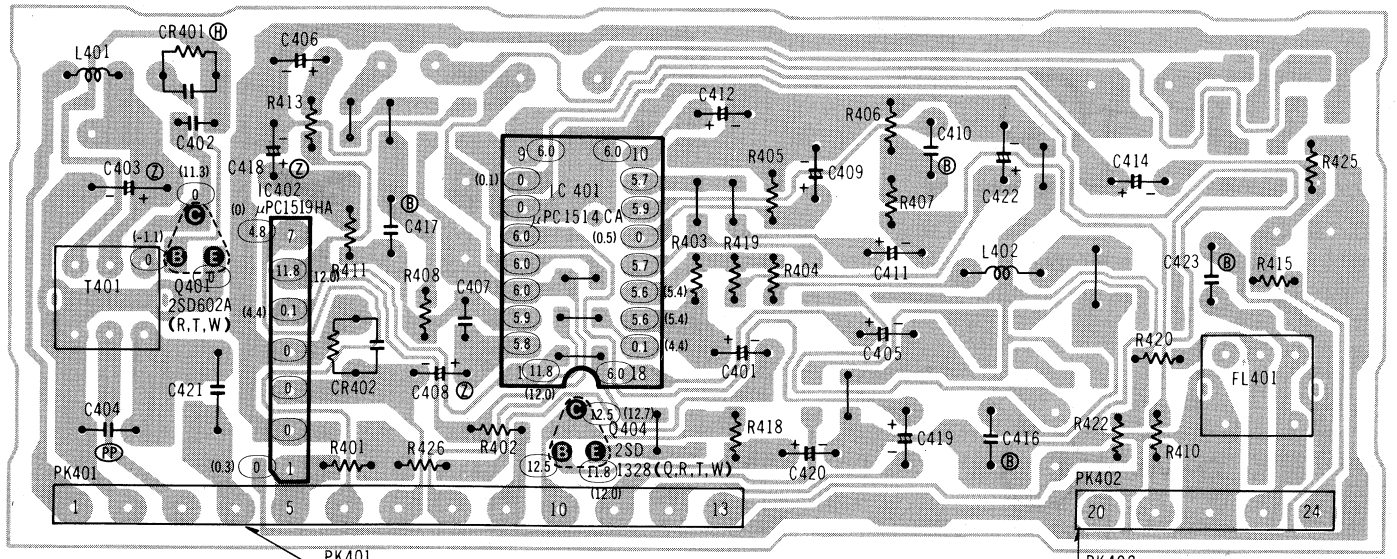


AN3310S



2SD601
2SC2404
2SB709

AUDIO PACK CIRCUIT BOARD (VEP04107)


L401
CR401 Ⓗ
C406
R413
C402
C403 Ⓩ
C418 Ⓩ
IC402
μPC1519HA
T401
Q401
2SD602A
(R.T.W)
R411
R408
C417
C407
CR402
C408 Ⓩ
C404
C421
PK401
R401
R426
R402
IC 401
μPC1514CA
R403
R419
R404
R405
C409
R406
C410
R407
C422
C412
C411
L402
C405
C401
Q404
2SD1328 (Q.R.T.W)
R418
C419
C420
C416
R422
R410
R420
C414
R425
C423
R415
FL401
PK402

PK401

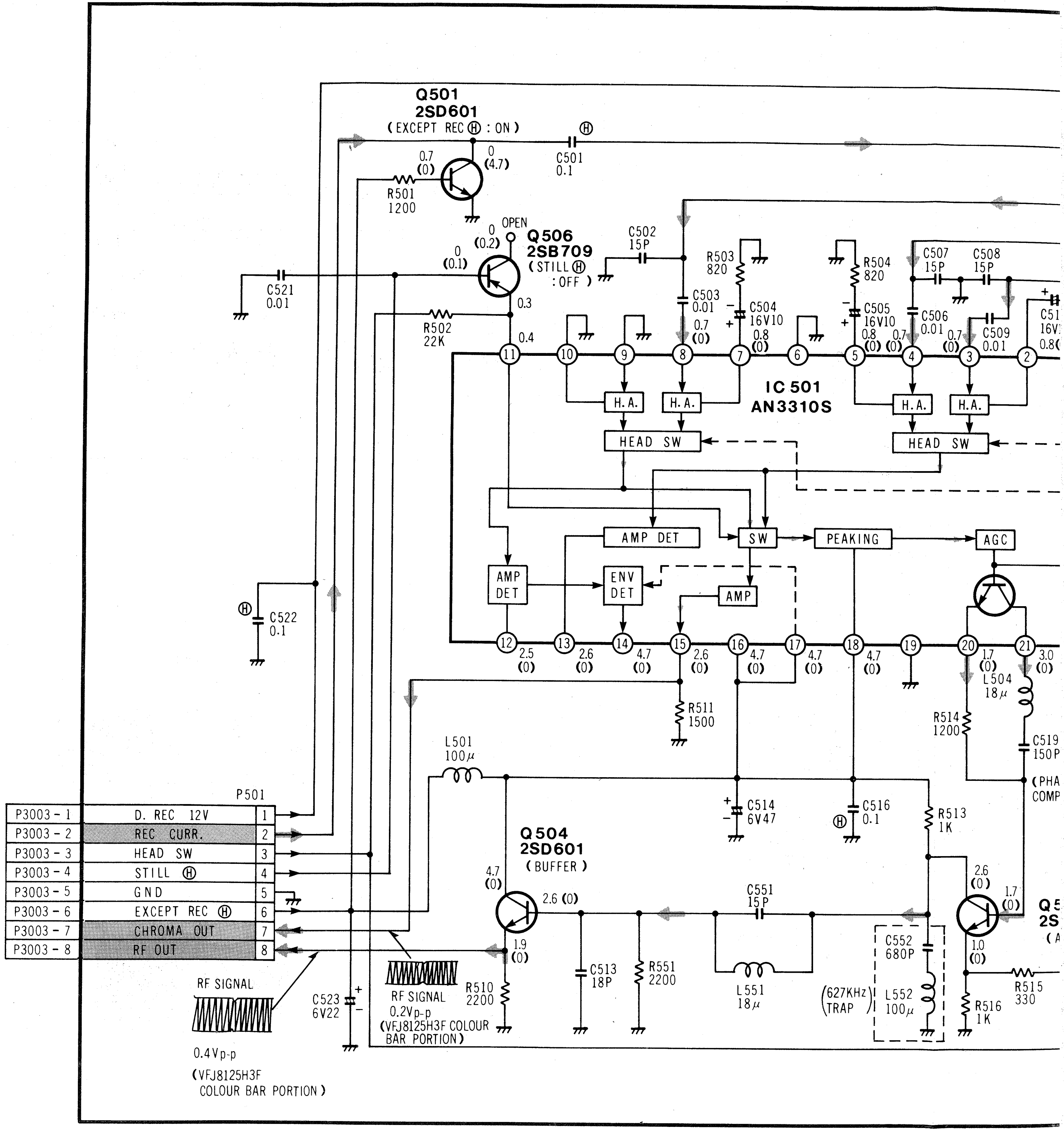
1	D REC 12V
2	GND (OSC)
3	A. ERASE
4	BIAS GAIN
5	A. HEAD (R)
6	E. REC Ⓗ
7	A. HEAD (P)
8	———
9	E E Ⓗ
10	REG 12V
11	———
12	P. B GAIN
13	———

PK402

20	———
21	A. MUTE Ⓗ
22	GND (MAIN)
23	AUDIO OUT
24	AUDIO IN

3-14. HEAD AMP PACK SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN

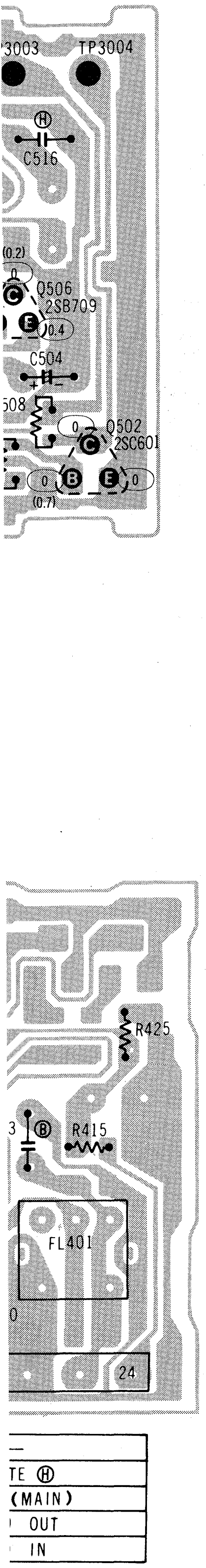

Q501
2SD601
(EXCEPT REC Ⓗ : ON)
C501 0.1
R501 1200
Q506
2SB709
(STILL Ⓗ : OFF)
OPEN
C502 15P
R503 820
R504 820
C507 15P
C508 15P
C521 0.01
R502 22K
C503 0.01
C504 16V10
C505 16V10
C506 0.01
C509 0.01
IC 501
AN3310S
H.A.
HEAD SW
AMP DET
SW
PEAKING
AGC
ENV DET
AMP
C522 0.1
R511 1500
R514 1200
L504 18μ
C519 150P
L501 100μ
C514 6V47
C516 0.1
R513 1K
Q504
2SD601
(BUFFER)
C551 15P
C513 18P
R551 2200
L551 18μ
C552 680P
L552 100μ
(627KHz) TRAP
R516 1K
R515 330
R510 2200
C523 6V22
RF SIGNAL
0.4Vp-p
(VFJ8125H3F COLOUR BAR PORTION)
RF SIGNAL
0.2Vp-p
(VFJ8125H3F COLOUR BAR PORTION)
P501

P3003 - 1	D. REC 12V	1
P3003 - 2	REC CURR.	2
P3003 - 3	HEAD SW	3
P3003 - 4	STILL Ⓗ	4
P3003 - 5	GND	5
P3003 - 6	EXCEPT REC Ⓗ	6
P3003 - 7	CHROMA OUT	7
P3003 - 8	RF OUT	8

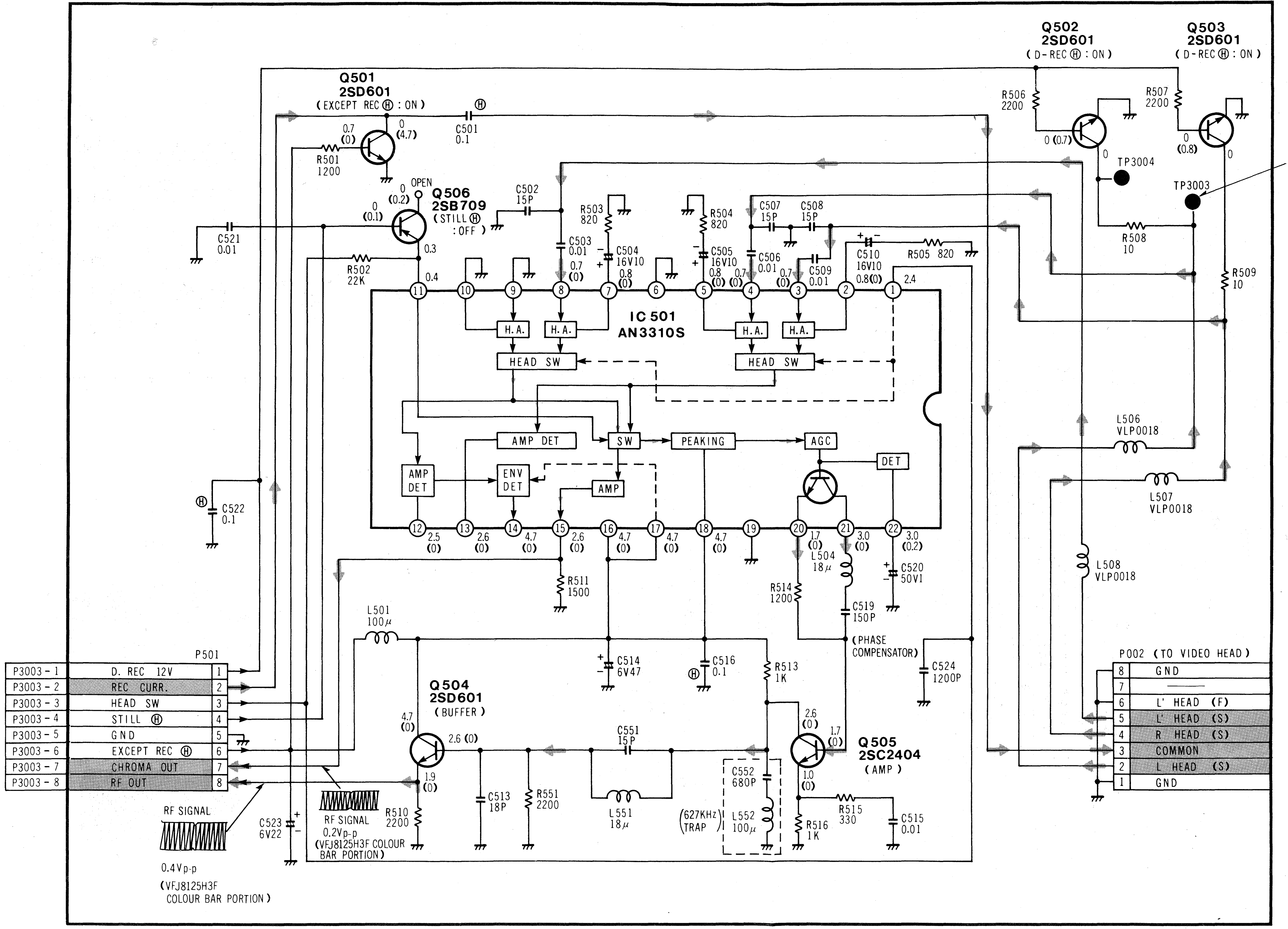
NOTE: THE MEASUREMENT MODE OF THE DC VO
WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOI
WITH PAL COLOUR SIGNAL.

3-14. HEAD AMP PACK SCHEMATIC DIAGRAM

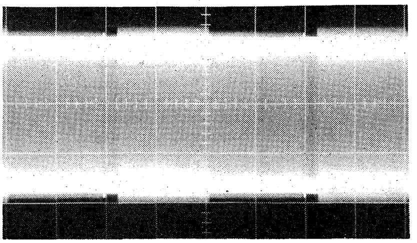
⇐ MAIN SIGNAL PATH IN REC MODE. ⇐ MAIN SIGNAL PATH IN PLAYBACK MODE.



TP3003
TP3004
C516
Q506
2SB709
C504
Q502
2SC601
R425
R415
FL401
24
TE Ⓗ
(MAIN)
OUT
IN



Q501
2SD601
(EXCEPT REC Ⓗ : ON)
R501 1200
C501 0.1
Q506
2SB709
(STILL Ⓗ : OFF)
OPEN
C502 15P
C521 0.01
R502 22K
R503 820
C503 0.01
C504 16V10
R504 820
C505 16V10
C506 0.01
C507 15P
C508 15P
C509 0.01
C510 16V10
R505 820
IC 501
AN3310S
H.A.
HEAD SW
AMP DET
SW
PEAKING
AGC
ENV DET
AMP
DET
C522 0.1
R511 1500
L501 100μ
C514 6V47
C516 0.1
R513 1K
R514 1200
L504 18μ
C519 150P
C520 50V1
(PHASE COMPENSATOR)
C524 1200P
Q502
2SD601
(D-REC Ⓗ : ON)
Q503
2SD601
(D-REC Ⓗ : ON)
R506 2200
R507 2200
TP3004
TP3003
R508 10
R509 10
L506 VLP0018
L507 VLP0018
L508 VLP0018
Q504
2SD601
(BUFFER)
C551 15P
L551 18μ
C513 18P
R551 2200
C552 680P
L552 100μ
(627KHz TRAP)
Q505
2SC2404
(AMP)
R515 330
R516 1K
C515 0.01
R510 2200
C523 6V22
P501
P3003-1 D. REC 12V 1
P3003-2 REC CURR. 2
P3003-3 HEAD SW 3
P3003-4 STILL Ⓗ 4
P3003-5 GND 5
P3003-6 EXCEPT REC Ⓗ 6
P3003-7 CHROMA OUT 7
P3003-8 RF OUT 8
P002 (TO VIDEO HEAD)
8 GND
7 ———
6 L' HEAD (F)
5 L' HEAD (S)
4 R HEAD (S)
3 COMMON
2 L HEAD (S)
1 GND
RF SIGNAL
0.4Vp-p
(VFJ8125H3F COLOUR BAR PORTION)
RF SIGNAL
0.2Vp-p
(VFJ8125H3F COLOUR BAR PORTION)

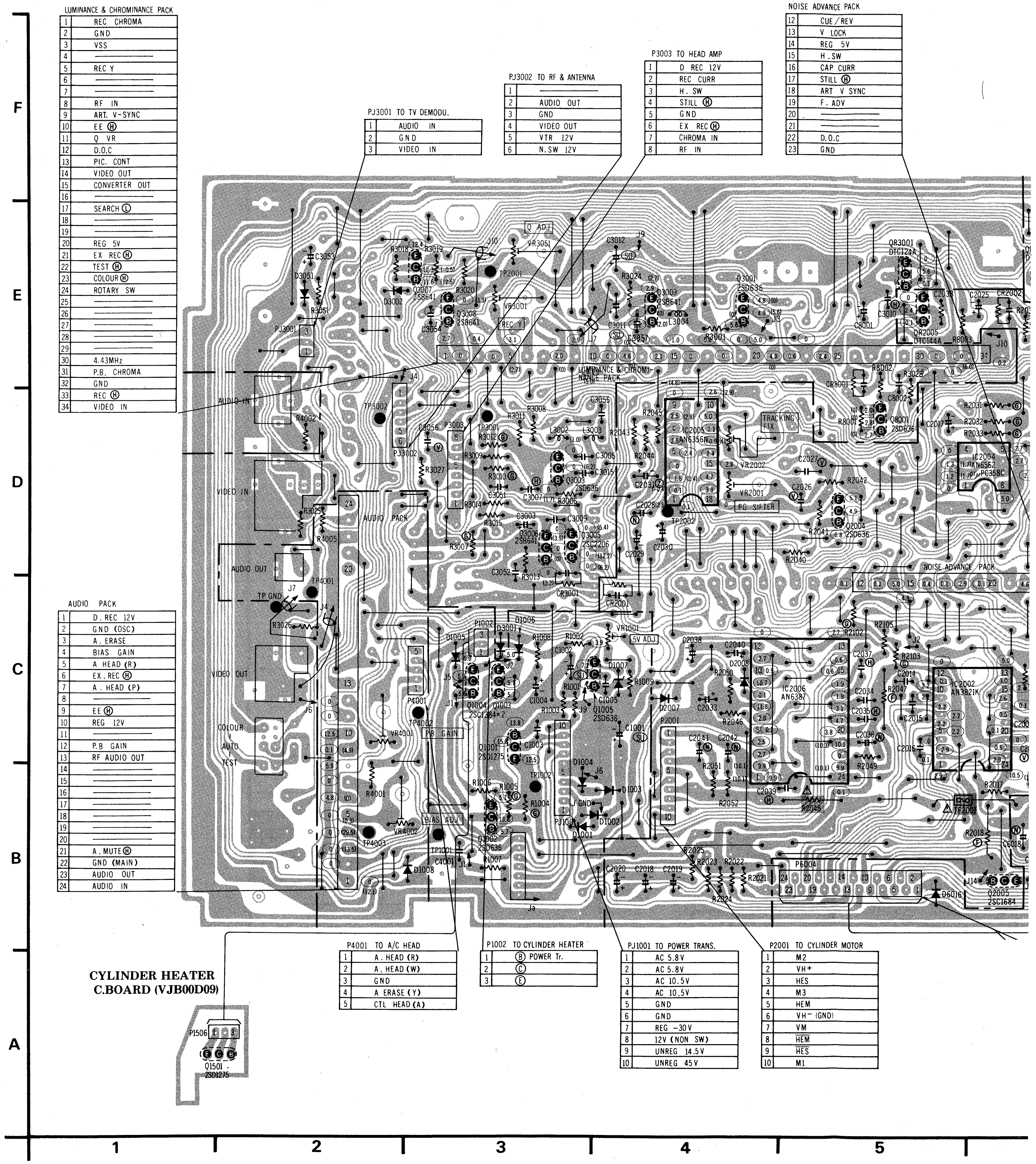


TP3003 REC
50mV/5msec. div. 180mVp-p

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

Next Page:
LUMINANCE & CHROMINANCE Section

3-15. LUMINANCE & CHROMINANCE Section in Main Circuit Board (VEP03236D)


F
E
D
C
B
A
1
2
3
4
5
LUMINANCE & CHROMINANCE PACK
AUDIO PACK
NOISE ADVANCE PACK
VIDEO IN
AUDIO IN
AUDIO OUT
VIDEO OUT
COLOUR
AUTO
TEST
TP GND
Q ADJ
VR3051
VR3001
TRACKING FIX
PG SIFTER
VR2001
VR2002
5V ADJ
VR1001
PB GAIN
BIAS ADJ
VR4001
IC2005 AN3356
IC2006 AN6387
IC2002 AN3821K
IC2004 M5262
TP3001
TP3002
TP2001
TP2002
TP1001
TP1002
TP4002
TP4003
QR3001 DTC124A
Q3001 2SD636
Q3005 2SC2206
Q8001 2SD636
Q2004 2SD636
Q2005 2SC1684
Q1005 2SD636
Q1001 2SD1275
Q1002 2SD636
P6004
P4001
P2001
PJ1001
PJ3001
PJ3002
P3003
P1506
Q1501 2SD1275

CYLINDER HEATER
C.BOARD (VJB00D09)

LUMINANCE & CHROMINANCE PACK

1	REC CHROMA
2	GND
3	VSS
4	————
5	REC Y
6	————
7	————
8	RF IN
9	ART. V-SYNC
10	EE Ⓗ
11	Q VR
12	D.O.C
13	PIC. CONT
14	VIDEO OUT
15	CONVERTER OUT
16	————
17	SEARCH Ⓛ
18	————
19	————
20	REG 5V
21	EX REC Ⓗ
22	TEST Ⓗ
23	COLOUR Ⓗ
24	ROTARY SW
25	————
26	————
27	————
28	————
29	————
30	4.43MHz
31	P.B. CHROMA
32	GND
33	REC Ⓗ
34	VIDEO IN

PJ3001 TO TV DEMODU.

1	AUDIO IN
2	GND
3	VIDEO IN

PJ3002 TO RF & ANTENNA

1	————
2	AUDIO OUT
3	GND
4	VIDEO OUT
5	VTR 12V
6	N.SW 12V

P3003 TO HEAD AMP

1	D REC 12V
2	REC CURR
3	H. SW
4	STILL Ⓗ
5	GND
6	EX REC Ⓗ
7	CHROMA IN
8	RF IN

NOISE ADVANCE PACK

12	CUE/REV
13	V LOCK
14	REG 5V
15	H.SW
16	CAP CURR
17	STILL Ⓗ
18	ART V SYNC
19	F. ADV
20	————
21	————
22	D.O.C
23	GND

AUDIO PACK

1	D. REC 12V
2	GND (OSC)
3	A. ERASE
4	BIAS GAIN
5	A HEAD (R)
6	EX. REC Ⓗ
7	A. HEAD (P)
8	————
9	EE Ⓗ
10	REG 12V
11	————
12	P.B GAIN
13	RF AUDIO OUT
14	————
15	————
16	————
17	————
18	————
19	————
20	————
21	A. MUTE Ⓗ
22	GND (MAIN)
23	AUDIO OUT
24	AUDIO IN

P4001 TO A/C HEAD

1	A. HEAD (R)
2	A. HEAD (W)
3	GND
4	A ERASE (Y)
5	CTL HEAD (A)

P1002 TO CYLINDER HEATER

1	Ⓑ POWER Tr.
2	Ⓒ
3	Ⓔ

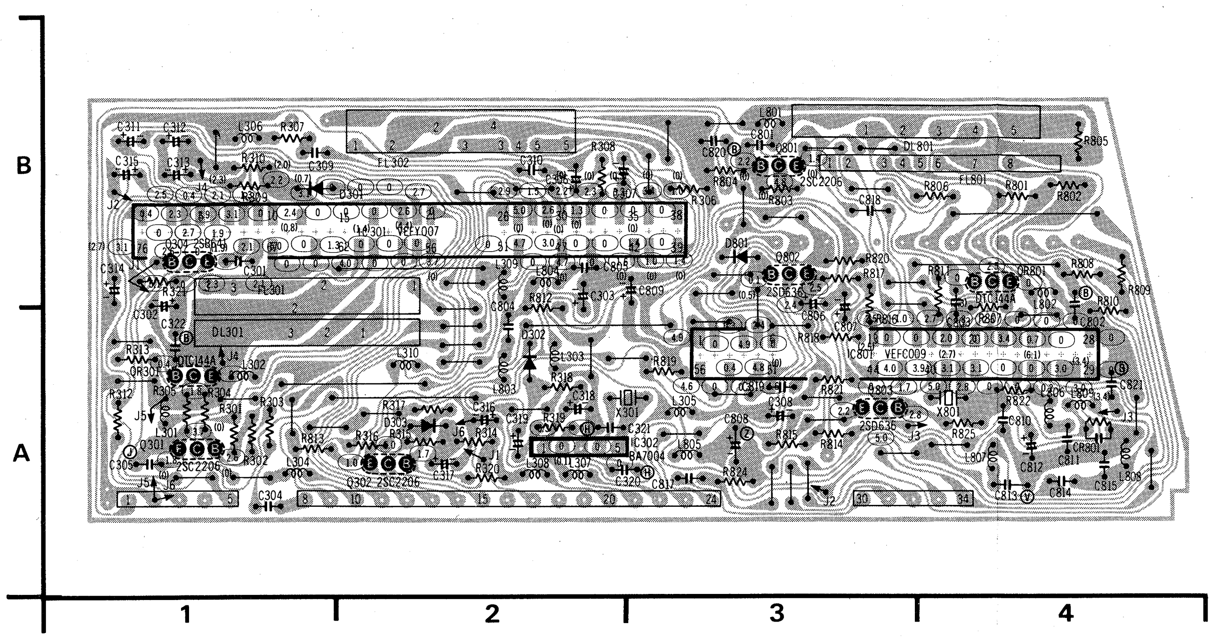
PJ1001 TO POWER TRANS.

1	AC 5.8V
2	AC 5.8V
3	AC 10.5V
4	AC 10.5V
5	GND
6	GND
7	REG −30V
8	12V (NON SW)
9	UNREG 14.5V
10	UNREG 45V

P2001 TO CYLINDER MOTOR

1	M2
2	VH+
3	HES
4	M3
5	HEM
6	VH− (GND)
7	VM
8	$\overline{\text{HEM}}$
9	$\overline{\text{HES}}$
10	M1

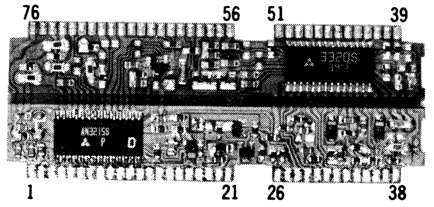
LUMINANCE & CHROMINANCE PACK CIRCUIT BOARD (VEP03232A)


B
A
1
2
3
4
IC301 VEFY007
IC801 VEFC009
DL301
DL801
FL301
FL302
FL801
X301
X801
Q301
Q302 2SC2206
Q303
Q304
Q801 2SC2206
Q802
Q803
Q804 2SC2206
IC302 BA7004
QR301 DTC144A
J4
J5
J10
J12

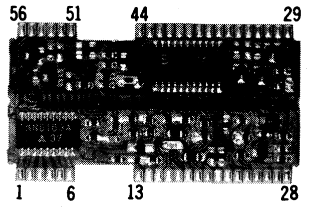
LUMINANCE & CHROMINANCE CIRCUIT BOARD	
Transistor	
Q3001	E-4
Q3003	D-3
Q3005	D-3
Q3006	D-3
Q3007	E-3
Q3008	E-3
Q3009	E-4
Q8001	D-5
Transistor & Resistor	
QR3001	E-5
Test Point	
TP3001	D-3
TP3002	D-2
Adjustment	
VR3001	E-3
VR3051	E-3

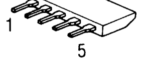
ADDRESS INFORMATION

VEFY007

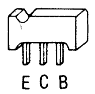

76
56
51
39
1
21
26
38

VEFC009


56
51
44
29
1
6
13
28



BA7004

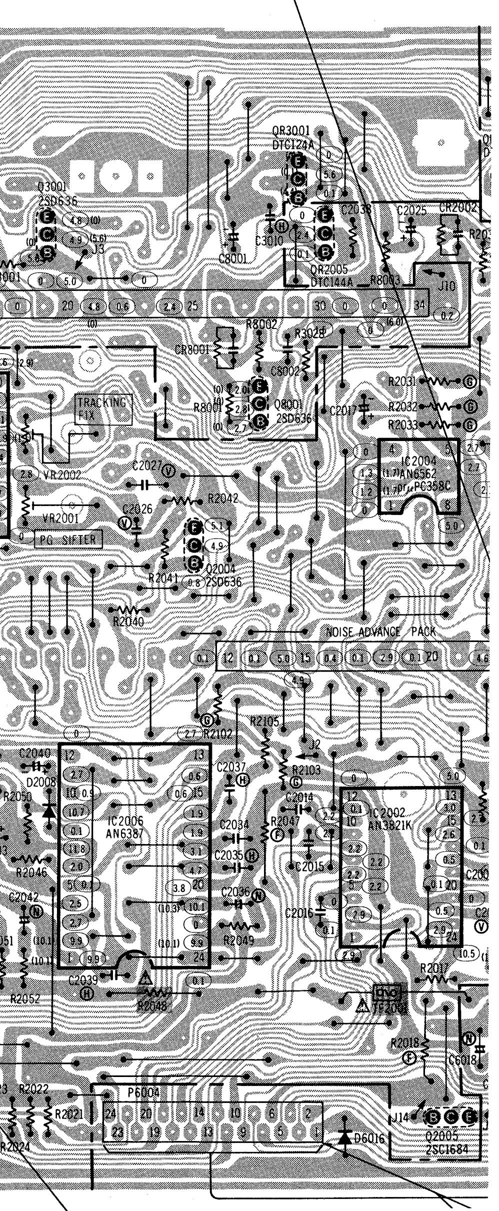


2SD636, 2SC2188
2SB641
2SC2206

cuit Board (VEP03236D)

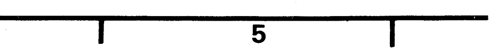
NOISE ADVANCE PACK

12	CUE / REV
13	V LOCK
14	REG 5V
15	H.SW
16	CAP CURR
17	STILL Ⓗ
18	ART V SYNC
19	F.ADV
20	———
21	———
22	D.O.C
23	GND

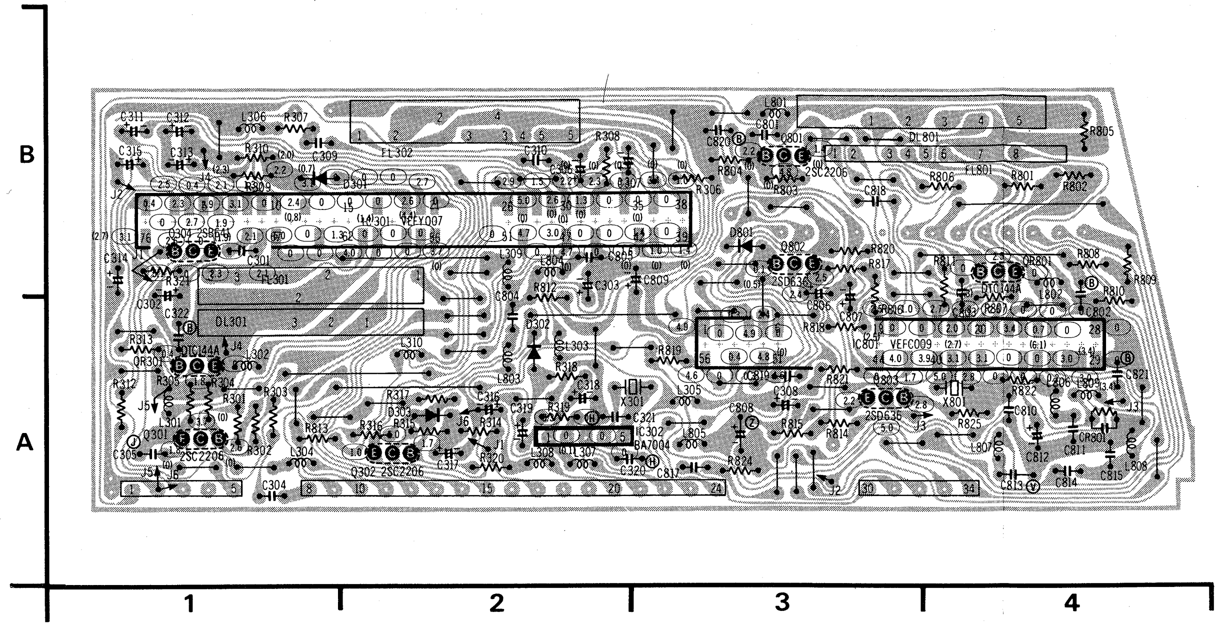

AMP
2V
R
Ⓗ
N
QR3001
DTC124A
Q3001
2SD636
C3001
C8001
QR2005
DTC144A
R8003
J10
CR8001
R8002
R3028
C8002
Q8001
2SD636
R8001
R2031
R2032
R2033
TRACKING FIX
IC2004
μPC358C
VR2002
VR2001
PG SHIFTER
C2027
C2026
R2042
Q2004
2SD636
R2041
R2040
NOISE ADVANCE PACK
R2105
C2040
D2009
R2050
IC2006
AN6387
R2102
C2037
R2103
C2034
C2035
R2047
C2015
IC2002
AN3821K
C2036
R2049
C2042
R2046
R2052
C2038
R2048
R2017
R2018
C6018
R2022
R2021
R2024
P6004
D6016
J14
Q2005
2SC1684

P2001 TO CYLINDER MOTOR

1	M2
2	VH+
3	HES
4	M3
5	HEM
6	VH− (GND)
7	VM
8	$\overline{\text{HEM}}$
9	$\overline{\text{HES}}$
10	M1



LUMINANCE & CHROMINANCE PACK CIRCUIT BOARD (VEP03232A)


B
A
1
2
3
4
C311
C312
L306
R307
C315
C313
R310
C309
L302
D301
VEFY007
IC301
C314
R324
DL301
L310
R313
QR301
C322
R312
J5
Q301
2SC2206
R302
C305
J6
C304
R304
L304
R313
R316
R317
R311
D302
Q302
2SC2206
C316
R314
C317
R319
C319
L308
L307
C320
IC302
BA7004
X301
R324
C321
L805
C808
C810
C811
C812
C813
C814
C815
L801
C801
C820
DL801
R806
FL801
R801
R802
R805
R808
R809
R810
D801
D802
Q802
2SD636
R820
R817
R816
QR801
DTC144A
L802
IC801
VEFC009
R822
R821
Q803
2SD636
X801
R825
L806
R815
R814
C818
C303
C309
R318
L303
R319
L803
R319
Q304

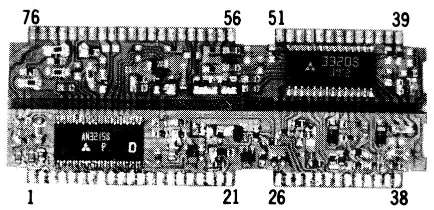
LUMINANCE & CHROMINANCE PACK CIRCUIT BOARD	
Transistor	
Q301	A-1
Q302	A-2
Q304	B-1
Q801	B-3
Q802	B-3
Q803	A-3
Transistor & Resistor	
QR301	A-4
QR801	B-4
Integrated Circuit	
IC301	B-2
IC302	A-2
IC801	A-3

ADDRESS INFORMATION

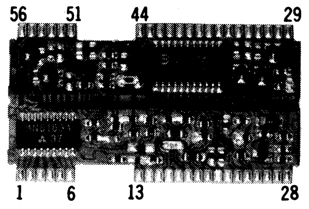
LUMINANCE & CHROMINANCE CIRCUIT BOARD	
Transistor	
Q3001	E-4
Q3003	D-3
Q3005	D-3
Q3006	D-3
Q3007	E-3
Q3008	E-3
Q3009	E-4
Q8001	D-5
Transistor & Resistor	
QR3001	E-5
Test Point	
TP3001	D-3
TP3002	D-2
Adjustment	
VR3001	E-3
VR3051	E-3

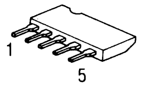
ADDRESS INFORMATION

VEFY007

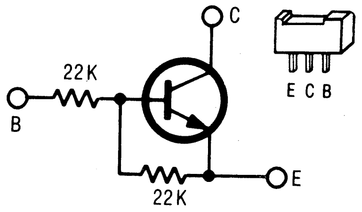

76
56
51
39
1
21
26
38

VEFC009

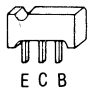

56
51
44
29
1
6
13
28



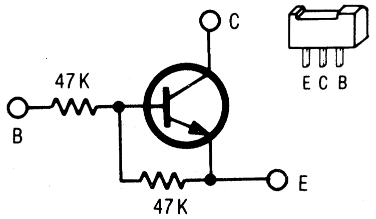
BA7004


C
22K
B
E
22K
E C B

DTC124A

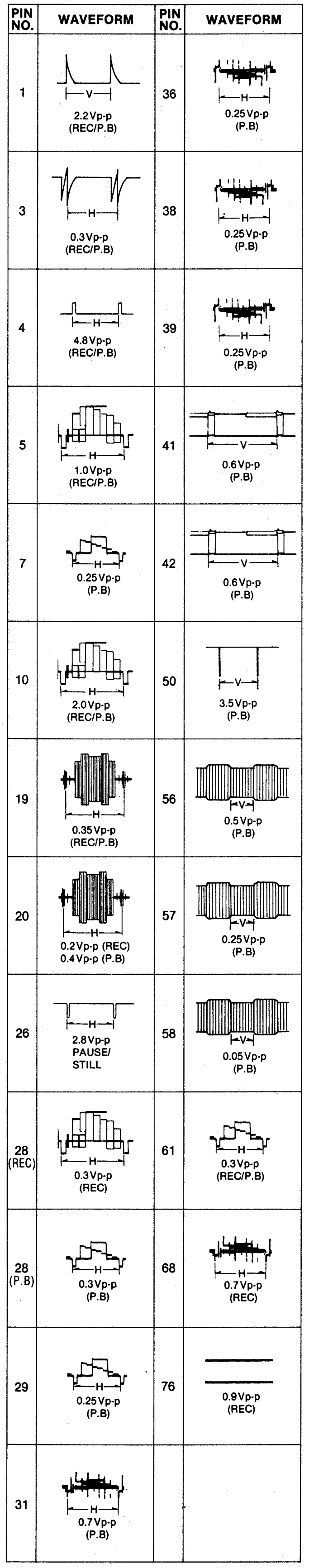


2SD636, 2SC2188
2SB641
2SC2206


C
47K
B
E
47K
E C B

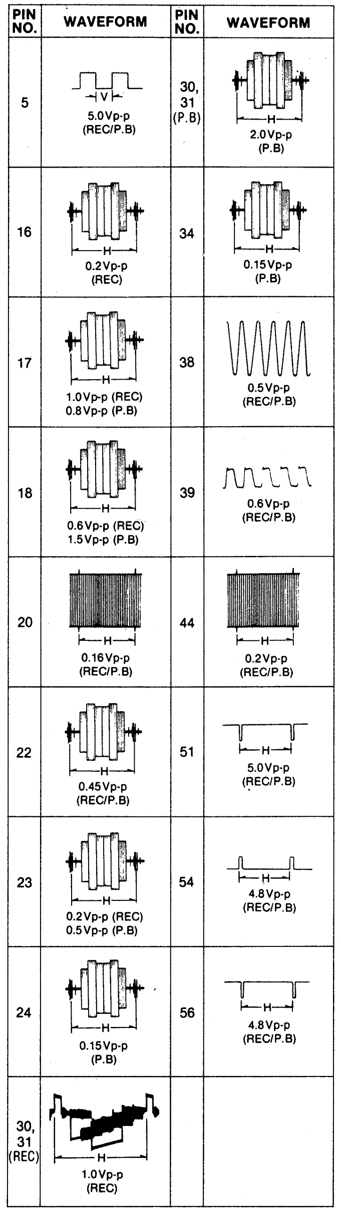
DTC144A

IC301 (VEFY007)



PIN NO.	WAVEFORM	PIN NO.	WAVEFORM
1	V 2.2Vp-p (REC/P.B)	36	H 0.25Vp-p (P.B)
3	H 0.3Vp-p (REC/P.B)	38	H 0.25Vp-p (P.B)
4	H 4.8Vp-p (REC/P.B)	39	H 0.25Vp-p (P.B)
5	H 1.0Vp-p (REC/P.B)	41	V 0.6Vp-p (P.B)
7	H 0.25Vp-p (P.B)	42	V 0.6Vp-p (P.B)
10	H 2.0Vp-p (REC/P.B)	50	V 3.5Vp-p (P.B)
19	H 0.35Vp-p (REC/P.B)	56	V 0.5Vp-p (P.B)
20	H 0.2Vp-p (REC) 0.4Vp-p (P.B)	57	V 0.25Vp-p (P.B)
26	H 2.8Vp-p PAUSE/ STILL	58	V 0.05Vp-p (P.B)
28 (REC)	H 0.3Vp-p (REC)	61	H 0.3Vp-p (REC/P.B)
28 (P.B)	H 0.3Vp-p (P.B)	68	H 0.7Vp-p (REC)
29	H 0.25Vp-p (P.B)	76	0.9Vp-p (REC)
31	H 0.7Vp-p (P.B)		

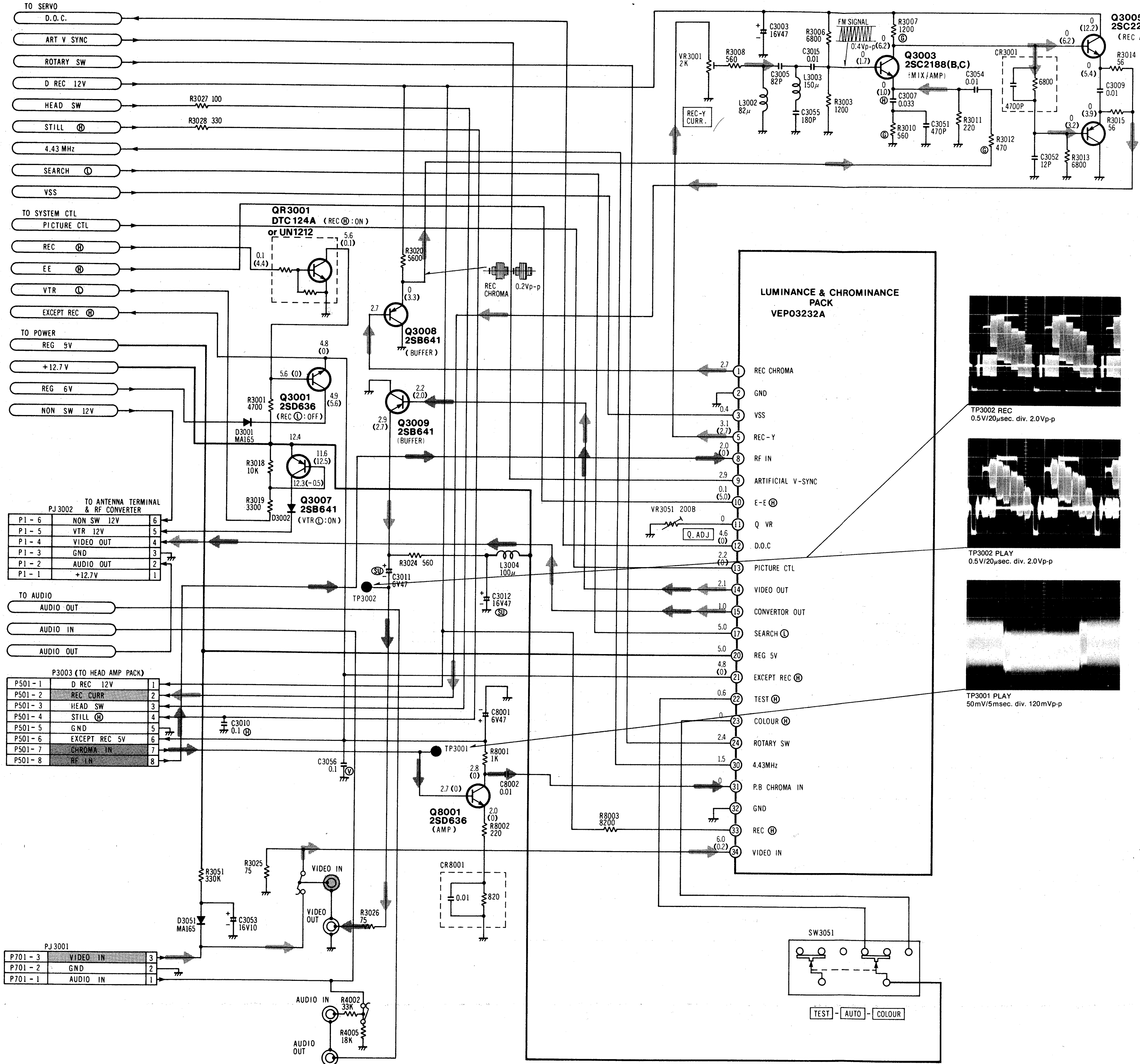
IC801 (VEFC009)



PIN NO.	WAVEFORM	PIN NO.	WAVEFORM
5	V 5.0Vp-p (REC/P.B)	30, 31 (P.B)	H 2.0Vp-p (P.B)
16	H 0.2Vp-p (REC)	34	H 0.15Vp-p (P.B)
17	H 1.0Vp-p (REC) 0.8Vp-p (P.B)	38	0.5Vp-p (REC/P.B)
18	H 0.6Vp-p (REC) 1.5Vp-p (P.B)	39	0.6Vp-p (REC/P.B)
20	H 0.16Vp-p (REC/P.B)	44	H 0.2Vp-p (REC/P.B)
22	H 0.45Vp-p (REC/P.B)	51	H 5.0Vp-p (REC/P.B)
23	H 0.2Vp-p (REC) 0.5Vp-p (P.B)	54	H 4.8Vp-p (REC/P.B)
24	H 0.15Vp-p (P.B)	56	H 4.8Vp-p (REC/P.B)
30, 31 (REC)	H 1.0Vp-p (REC)		

3-16. LUMINANCE & CHROMINANCE SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN PLAYBACK MODE.
MAIN SIGNAL PATH IN REC MODE.


TO SERVO
D.O.C.
ART V SYNC
ROTARY SW
D REC 12V
HEAD SW
STILL Ⓗ
4.43 MHz
SEARCH Ⓛ
VSS
TO SYSTEM CTL
PICTURE CTL
REC Ⓗ
EE Ⓗ
VTR Ⓛ
EXCEPT REC Ⓗ
TO POWER
REG 9V
+12.7V
REG 6V
NON SW 12V
R3027 100
R3028 330
QR3001
DTC 124A (REC Ⓗ : ON)
or UN1212
Q3001
2SD636
(REC Ⓛ : OFF)
Q3007
2SB641
(VTR Ⓛ : ON)
D3001
MA165
D3002
R3001 4700
R3018 10K
R3019 3300
Q3008
2SB641
(BUFFER)
Q3009
2SB641
(BUFFER)
R3020 5600
REC CHROMA
0.2Vp-p
PJ3002 TO ANTENNA TERMINAL & RF CONVERTER
P1-6 NON SW 12V 6
P1-5 VTR 12V 5
P1-4 VIDEO OUT 4
P1-3 GND 3
P1-2 AUDIO OUT 2
P1-1 +12.7V 1
TO AUDIO
AUDIO OUT
AUDIO IN
AUDIO OUT
P3003 (TO HEAD AMP PACK)
P501-1 D REC 12V 1
P501-2 REC CURR 2
P501-3 HEAD SW 3
P501-4 STILL Ⓗ 4
P501-5 GND 5
P501-6 EXCEPT REC 5V 6
P501-7 CHROMA IN 7
P501-8 RF IN 8
C3010 0.1 Ⓗ
C3056 0.1 Ⓥ
TP3002
R3024 560
C3011 6V47
L3004 100μ
C3012 16V47
TP3001
C8001 6V47
R8001 1K
C8002 0.01
Q8001
2SD636
(AMP)
R8002 220
R8003 8200
CR8001
0.01
820
R3051 330K
D3051 MA165
C3053 16V10
R3025 75
VIDEO IN
VIDEO OUT
R3026 75
PJ3001
P701-3 VIDEO IN 3
P701-2 GND 2
P701-1 AUDIO IN 1
AUDIO IN
R4002 33K
R4005 18K
AUDIO OUT
VR3001 2K
REC-Y CURR.
R3008 560
L3002 82μ
C3003 16V47
R3006 6800
C3015 0.01
C3005 82P
L3003 150μ
C3055 180P
R3003 1200
FM SIGNAL
0.4Vp-p
R3007 1200
Q3003
2SC2188(B,C)
(MIX/AMP)
C3007 0.033
R3010 560
C3051 470P
R3011 220
R3012 470
C3054 0.01
CR3001
4700P
6800
Q3005
2SC2206(B,C)
(REC AMP)
R3014 56
C3009 0.01
R3015 56
Q3006
2SB641 (R,S)
(REC AMP)
C3052 12P
R3013 6800
LUMINANCE & CHROMINANCE PACK
VEP03232A
1 REC CHROMA
2 GND
3 VSS
5 REC-Y
8 RF IN
9 ARTIFICIAL V-SYNC
10 E-E Ⓗ
11 Q VR
12 D.O.C
13 PICTURE CTL
14 VIDEO OUT
15 CONVERTOR OUT
17 SEARCH Ⓛ
20 REG 5V
21 EXCEPT REC Ⓗ
22 TEST Ⓗ
23 COLOUR Ⓗ
24 ROTARY SW
30 4.43MHz
31 P.B CHROMA IN
32 GND
33 REC Ⓗ
34 VIDEO IN
VR3051 200B
Q. ADJ
SW3051
TEST - AUTO - COLOUR

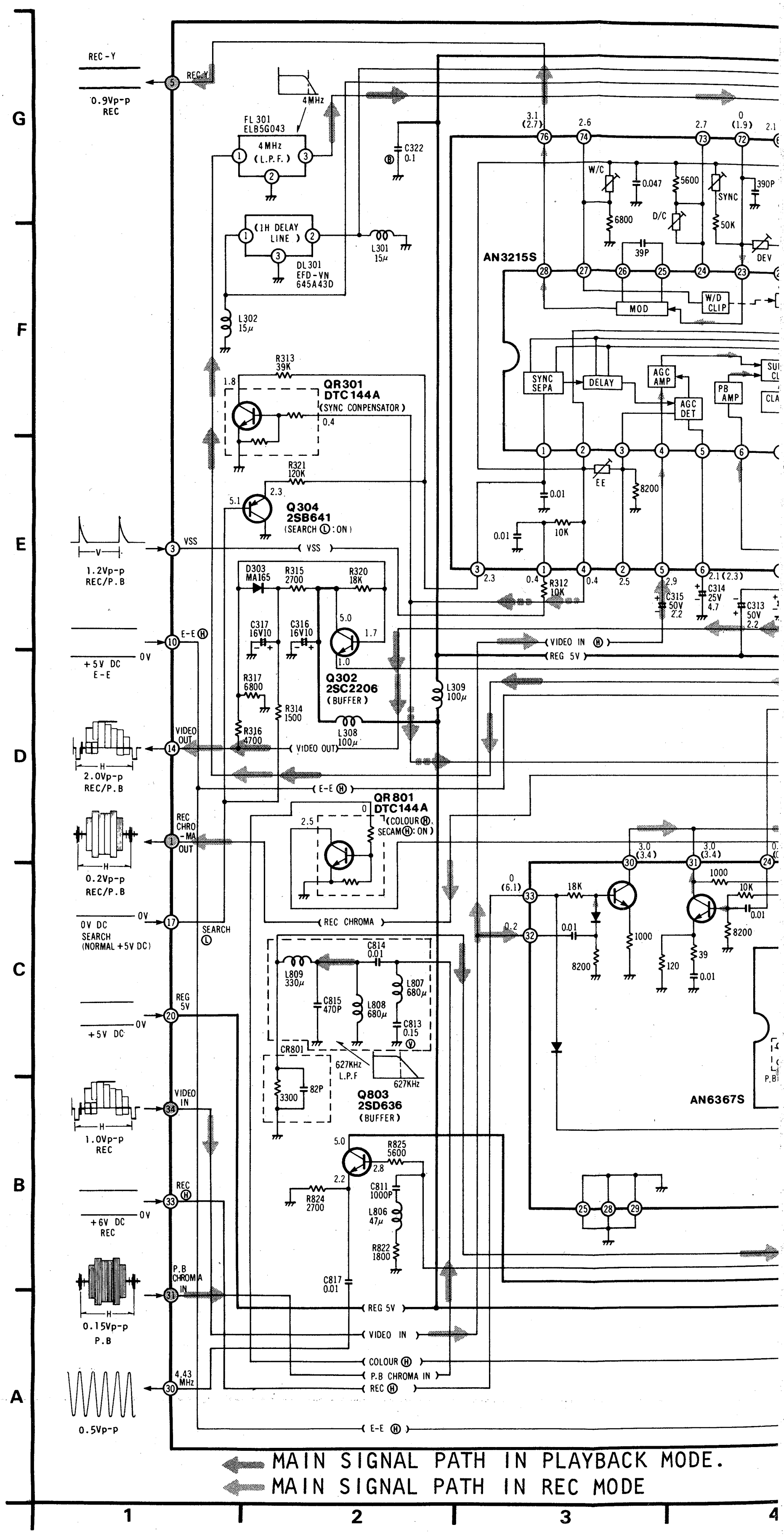
TP3002 REC
0.5V/20μsec. div. 2.0Vp-p

TP3002 PLAY
0.5V/20μsec. div. 2.0Vp-p

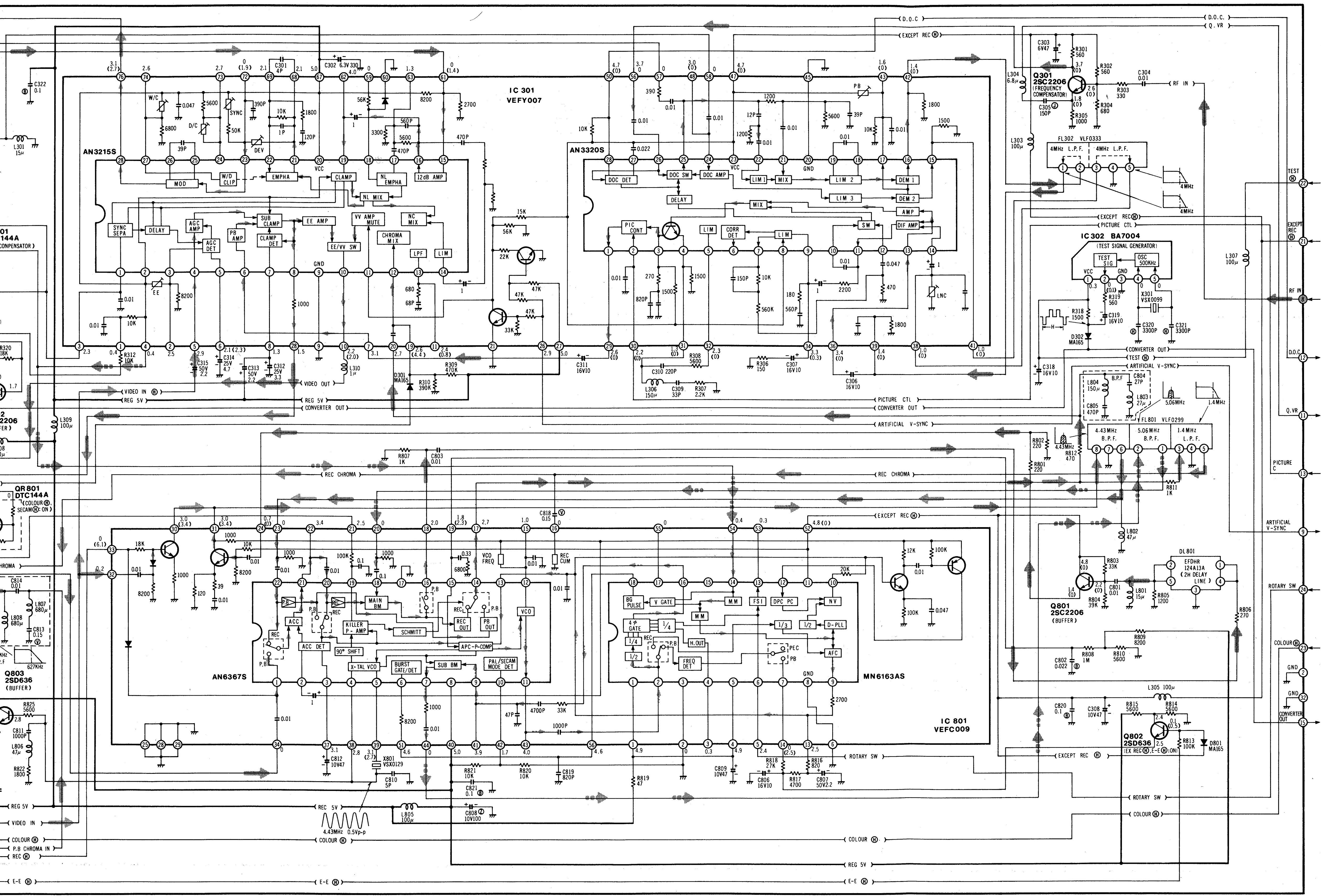
TP3001 PLAY
50mV/5msec. div. 120mVp-p

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

LUMINANCE & CHROMINANCE PACK SCHEM


G
F
E
D
C
B
A
1
2
3
4
REC-Y
0.9Vp-p REC
FL301 EL8SG043
4MHz (L.P.F.)
1H DELAY LINE
DL301 EFD-VN 645A43D
L301 15μ
L302 15μ
AN3215S
MOD
W/D CLIP
SYNC SEPA
DELAY
AGC AMP
AGC DET
PB AMP
R313 39K
QR301
DTC144A
(SYNC COMPENSATOR)
R321 120K
Q304
2SB641
(SEARCH Ⓛ : ON)
VSS
1.2Vp-p REC/P.B
D303 MA165
R315 2700
R320 18K
C317 16V10
C316 16V10
Q302
2SC2206
(BUFFER)
R317 6800
R314 1500
R316 4700
L309 100μ
L308 100μ
+5V DC E-E
E-E Ⓗ
VIDEO OUT
2.0Vp-p REC/P.B
REC CHROMA OUT
0.2Vp-p REC/P.B
QR801
DTC144A
(COLOUR Ⓗ, SECAM Ⓗ : ON)
0V DC SEARCH (NORMAL +5V DC)
SEARCH Ⓛ
REC CHROMA
L809 330μ
C814 0.01
L807 680μ
C815 470P
L808 680μ
C813 0.15
CR801
627KHz L.P.F
3300
82P
Q803
2SD636
(BUFFER)
REG 5V
+5V DC
VIDEO IN
1.0Vp-p REC
R825 5600
R824 2700
C811 1000P
L806 47μ
R822 1800
C817 0.01
REC Ⓗ
+6V DC REC
P.B CHROMA IN
0.15Vp-p P.B
4.43 MHz
0.5Vp-p
VIDEO IN Ⓗ
REG 5V
COLOUR Ⓗ
P.B CHROMA IN
REC Ⓗ
E-E Ⓗ
AN6367S
18K
1000
8200
120
39
0.01
10K
MAIN SIGNAL PATH IN PLAYBACK MODE.
MAIN SIGNAL PATH IN REC MODE

OMINANCE PACK SCHEMATIC DIAGRAM


IC 301
VEFY007
AN3215S
AN3320S
IC 302 BA7004
(TEST SIGNAL GENERATOR)
AN6367S
MN6163AS
IC 801
VEFC009
Q301
2SC2206
(FREQUENCY COMPENSATOR)
Q801
2SC2206
(BUFFER)
Q802
2SD636
Q803
2SD636
(BUFFER)
QR 801
DTC144A
FL302 VLF0333
FL801 VLF0299
DL801
EFDHR
124A13A
(2H DELAY LINE)
X301
VSX0099
X801
VSX0129
D301
MA165
D302
MA165
D801
MA165
D.O.C
Q.VR
EXCEPT REC
RF IN
TEST POSITION
EX. REC
PICTURE CTL
CONVERTER OUT
ARTIFICIAL V-SYNC
VIDEO IN
VIDEO OUT
REG 5V
REC CHROMA
ROTARY SW
COLOUR
P.B CHROMA IN
E-E
0.4Vp-p P.B
3.5Vp-p P.B
2.8Vp-p PAUSE/STILL
5.0Vp-p REC/P.B
1.0Vp-p REC/P.B
+12V DC COLOUR POSITION
4.43MHz 0.5Vp-p
2
3
4
5
6
7
8
9
10
11
12

LUMINANCE & CHROMINANCE PACK SCHEMATIC	
Transistor	
Q301	G-10
Q302	D-2
Q304	E-2
Q801	C-10
Q802	B-11
Q803	B-2
Transistor & Resistor	
QR301	F-2
QR801	D-2
Integrated Circuit	
IC301	G-6
IC302	F-10
IC801	B-9

ADDRESS INFORMATION

IGNAL PATH IN PLAYBACK MODE.

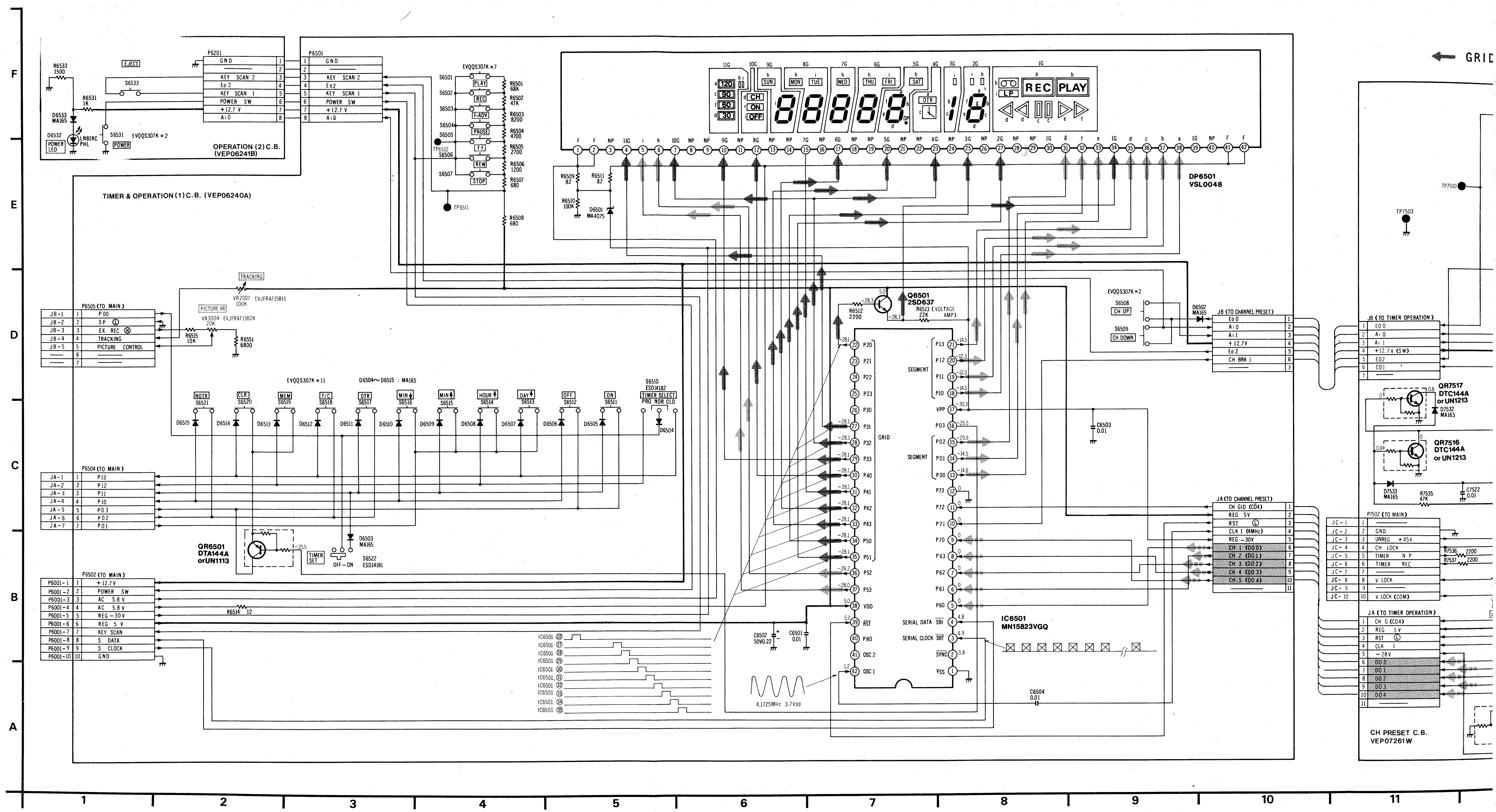
IGNAL PATH IN REC MODE

5.06 MHz PHASE ROTATIONAL SIGNAL IN PLAYBACK MODE.

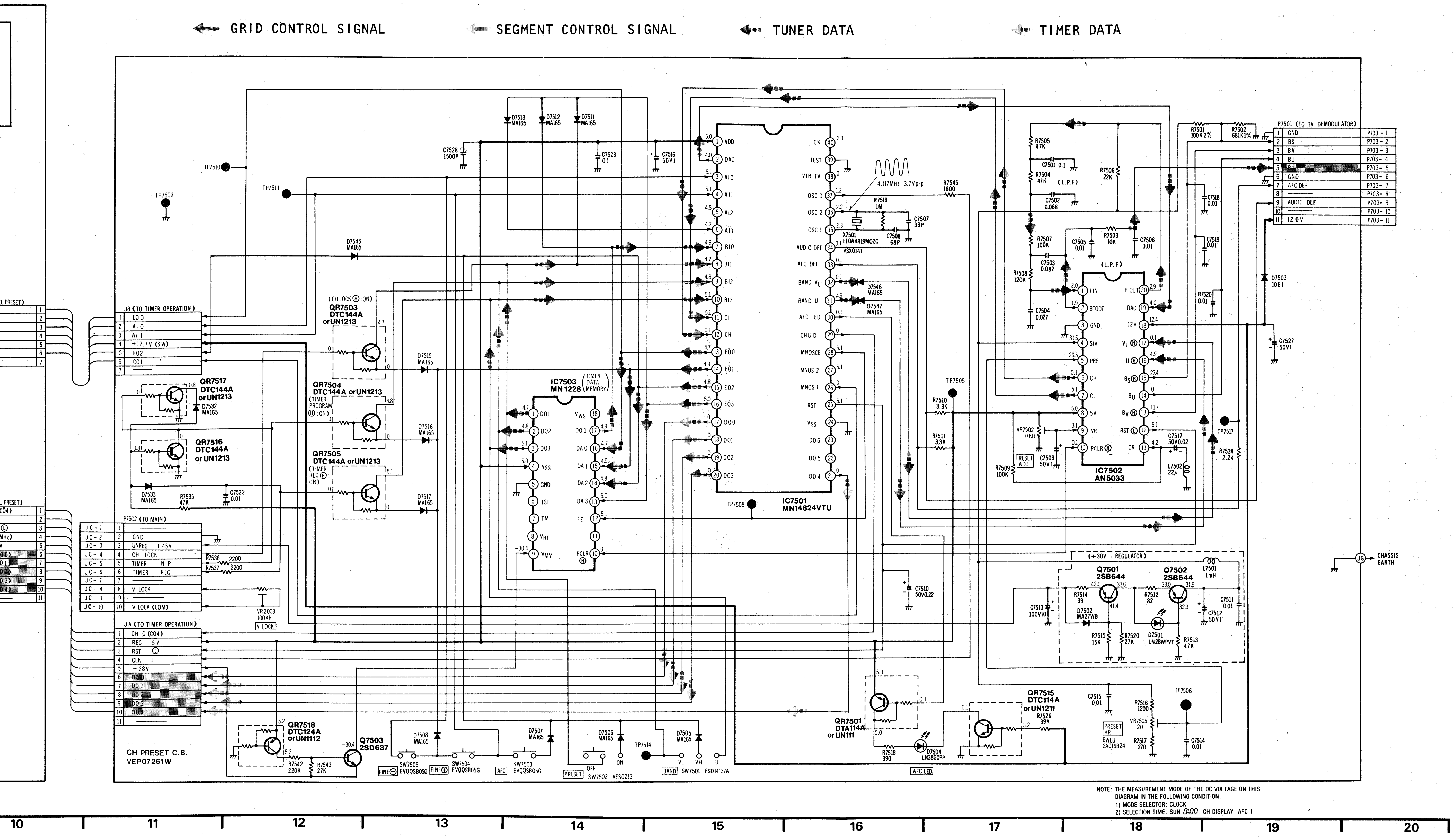
5.06 MHz PHASE ROTATIONAL SIGNAL IN REC MODE.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

3-17. TIMER & OPERATION SCHEMATIC DIAGRAM


OPERATION (2) C.B. (VEP06241B)
TIMER & OPERATION (1) C.B. (VEP06240A)
P6201
P6501
GND
KEY SCAN 2
Eo 2
KEY SCAN 1
POWER SW
+12.7 V
Ai 0
EJECT
S6533
R6533 1500
R6531 1K
D6533 MA165
D6532 POWER LED
LN81RC PHL
S6531 EVQQS307K × 2
POWER
EVQQS307K × 7
S6501 PLAY
S6502 REC
S6503 F-ADV
S6504 PAUSE
S6505 FF
S6506 REW
S6507 STOP
TP6512
TP6511
R6501 68K
R6502 47K
R6503 8200
R6504 4700
R6505 2700
R6506 1200
R6507 680
R6508 680
R6509 82
R6511 82
R6510 100K
D6501 MA4075
DP6501 VSL0048
11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G
SUN MON TUE WED THU FRI SAT
120 90 60 30
CH ON OFF
OTR
REC PLAY
LP
DP
GRID
TRACKING
VR2007 EVJFRAF15B15 100K
PICTURE VR
VR3004 EVJFRAF15B24 20K
R6515 10K
R6551 6800
P6505 (TO MAIN)
JB-1 P00
JB-2 SP
JB-3 EX REC
JB-4 TRACKING
JB-5 PICTURE CONTROL
EVQQS307K × 11
D6504～D6515 : MA165
NOTR S6521
CLR S6520
MEM S6519
T/C S6518
OTR S6517
MIN S6516
MIN S6515
HOUR S6514
DAY S6513
OFF S6512
ON S6511
S6510 ESD14182 TIMER SELECT PRO NOR CLO
D6515 D6514 D6513 D6512 D6511 D6510 D6509 D6508 D6507 D6506 D6505 D6504
P6504 (TO MAIN)
JA-1 P13
JA-2 P12
JA-3 P11
JA-4 P10
JA-5 P03
JA-6 P02
JA-7 P01
QR6501 DTA144A or UN1113
TIMER SET
OFF-ON
S6522 ESD14181
D6503 MA165
P6502 (TO MAIN)
P6001-1 +12.7 V
P6001-2 POWER SW
P6001-3 AC 5.8 V
P6001-4 AC 5.8 V
P6001-5 REG -30 V
P6001-6 REG 5 V
P6001-7 KEY SCAN
P6001-8 S DATA
P6001-9 S CLOCK
P6001-10 GND
R6514 12
Q6501 2SD637
R6512 2200
R6513 (VOLTAGE AMP) 22K
IC6501 MN15823VGQ
P20 P21 P22 P30 P31 P32 P33 P40 P41 P42 P43 P50 P51 P52 P53
VDD RST P80 OSC 2 OSC 1
P13 P12 P11 P10 VPP P03 P02 P01 P00 P73 P72 P71 P70 P63 P62 P61 P60
SEGMENT
GRID
SERIAL DATA SBI
SERIAL CLOCK SBT
SYNC
VSS
C6502 50V0.22
C6501 0.01
C6503 0.01
C6504 0.01
4.1725MHz 3.7Vpp
EVQQS307K × 2
S6508 CH UP
S6509 CH DOWN
D6502 MA165
JB (TO CHANNEL PRESET)
Eo 0
Ai 0
Ai 1
+12.7 V
Eo 2
CH BRK 1
JA (TO CHANNEL PRESET)
CH GID (CO4)
REG 5V
RST
CLK 1 (4MHz)
REG -30V
CH 1 (DO0)
CH 2 (DO1)
CH 3 (DO2)
CH 4 (DO3)
CH 5 (DO4)
JB (TO TIMER OPERATION)
EO 0
Ai 0
Ai 1
+12.7 V (SW)
EO2
CO1
QR7517 DTC144A or UN1213
D7532 MA165
QR7516 DTC144A or UN1213
D7533 MA165
R7535 47K
C7522 0.01
TP7510
TP7503
P7502 (TO MAIN)
JC-1 … JC-10
GND
UNREG +45V
CH LOCK
TIMER N P
TIMER REC
V LOCK
V LOCK (COM)
R7536 2200
R7537 2200
JA (TO TIMER OPERATION)
CH G (CO4)
REG 5V
RST
CLK 1
-28V
DO 0
DO 1
DO 2
DO 3
DO 4
CH PRESET C.B. VEP07261W
F E D C B A
1 2 3 4 5 6 7 8 9 10 11

Back Page:
LUMINANCE & CHROMINANCE Section

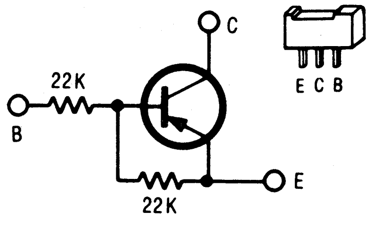

GRID CONTROL SIGNAL
SEGMENT CONTROL SIGNAL
TUNER DATA
TIMER DATA
IC7501 MN14824VTU
IC7502 AN5033
IC7503 MN1228 (TIMER DATA MEMORY)
QR7503 DTC144A or UN1213 (CH LOCK Ⓗ:ON)
QR7504 DTC144A or UN1213 (TIMER PROGRAM Ⓗ:ON)
QR7505 DTC144A or UN1213 (TIMER REC Ⓗ:ON)
QR7516 DTC144A or UN1213
QR7517 DTC144A or UN1213
QR7518 DTC124A or UN1112
Q7503 2SD637
QR7501 DTA114A or UN111
QR7515 DTC114A or UN1211
Q7501 2SB644
Q7502 2SB644
(+30V REGULATOR)
X7501 EFOA4R19M02C VSX0141
4.117MHz 3.7Vp-p
J8 (TO TIMER OPERATION)
P7502 (TO MAIN)
JA (TO TIMER OPERATION)
P7501 (TO TV DEMODULATOR)
SW7505 EVQQS805G FINE⊖
SW7504 EVQQS805G FINE⊕
SW7503 EVQQS805G AFC
SW7502 VES0213 PRESET
SW7501 ESD14137A BAND
AFC LED
CHASSIS EARTH
CH PRESET C.B.
VEP07261W
10
11
12
13
14
15
16
17
18
19
20

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IN THE FOLLOWING CONDITION.
1) MODE SELECTOR: CLOCK
2) SELECTION TIME: SUN 0:00, CH DISPLAY: AFC 1

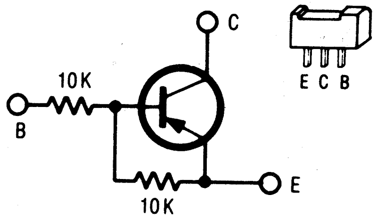
OPERATION, TIMER & CH PRESET SCHEMATIC	
Transistor	
Q6501	D-7
Q7501	B-18
Q7502	B-18
Q7503	A-13
Transistor & Resistor	
QR6501	B-2
QR7501	A-16
QR7503	D-12
QR7504	D-12
QR7505	C-12
QR7515	A-17
QR7516	C-11
QR7517	D-11
QR7518	A-12
Integrated Circuit	
IC6501	D-7
IC7501	C-16
IC7502	C-18
IC7503	D-14
Test Point	
TP6511	E-4
TP6512	E-4
TP7503	E-11
TP7506	A-18
TP7508	C-15
TP7510	E-11
TP7511	E-12
TP7514	A-14
TP7517	C-19
Adjustment	
VR2003	B-12
VR2007	D-2
VR3004	D-2
VR7502	C-17
VR7505	A-18
Connector	
JA	C-10
JA	B-11
JB	D-10
JB	D-11
P6201	F-2
P6501	F-3
P6502	B-1
P6504	C-1
P6505	D-1
P7501	E-19
P7502	C-11

ADDRESS INFORMATION

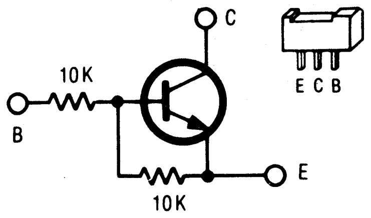
ICs & TRANSISTORs INFORMATION


C
22K
B
E
22K
E C B

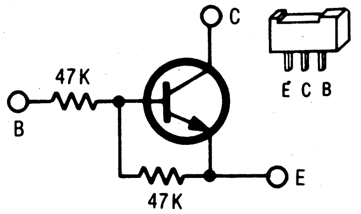
DTA124A


C
10K
B
E
10K
E C B

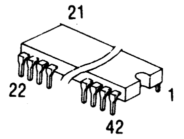
DTA114A


C
10K
B
E
10K
E C B

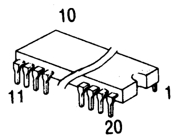
DTC114A


C
47K
B
E
47K
E C B

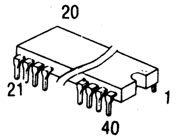
DTC144A
DTC144WA



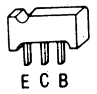
MN15823VGQ



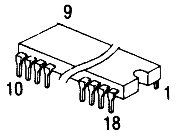
AN5033



MN14824VTU



2SD637
2SB644

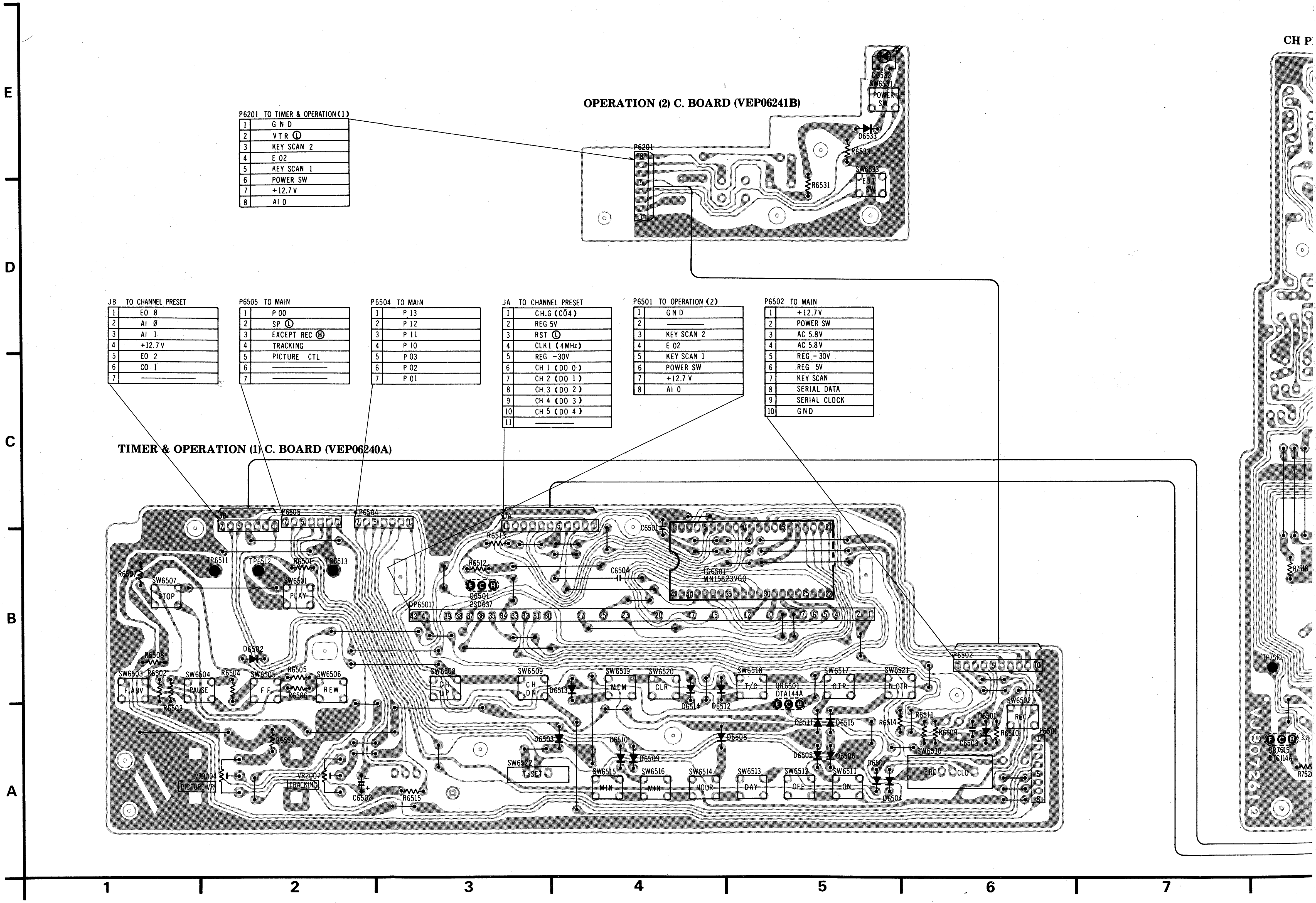


MN1228

OPERATION, TIMER & CH PRESET CIRCUIT BOARD	
Transistor	
Q6501	B-3
Q7501	E-10
Q7502	E-10
Q7503	A-10
Transistor & Resistor	
QR6501	B-5
QR7501	C-9
QR7503	C-10
QR7504	B-10
QR7505	B-10
QR7515	A-8
QR7516	B-10
QR7517	B-10
QR7518	A-10
Integrated Circuit	
IC6501	B-4
IC7501	C-9
IC7502	E-10
IC7503	B-10
Test Point	
TP6511	B-2
TP6512	B-2
TP6513	B-2
TP7503	E-10
TP7505	D-9
TP7506	E-9
TP7508	B-10
TP7510	B-8
TP7511	C-10
TP7514	C-10
TP7517	D-9
Adjustment	
VR2003	B-8
VR2007	A-2
VR3004	A-2
VR7502	E-10
VR7505	B-9

ADDRESS INFORMATION

3-18. TIMER & OPERATION (1) (VEP06240A), OPERATION (2) (VEP06241B) & CH PRESET (VEP07261W) CIRCUIT BOARDS


CH P
OPERATION (2) C. BOARD (VEP06241B)
TIMER & OPERATION (1) C. BOARD (VEP06240A)
E
D
C
B
A
1
2
3
4
5
6
7
P6201
D6532
SW6531
POWER SW
D6533
R6533
R6531
SW6533
EJT SW
JB
P6505
P6504
JA
C6501
IC6501
MN15823VGQ
R6513
R6512
C6504
Q6501
2SD637
P6501
TP6511
TP6512
TP6513
R6507
SW6507
STOP
R6501
SW6501
PLAY
D6502
R6508
SW6503
R6502
F.ADV
R6503
SW6504
PAUSE
R6504
SW6505
FF
R6505
R6506
SW6506
REW
SW6508
CH UP
SW6509
CH DN
D6513
SW6519
MEM
SW6520
CLR
D6514
D6512
SW6518
T/C
QR6501
DTA144A
SW6517
OTR
SW6521
N.OTR
P6502
SW6502
REC
D6511
D6515
R6514
R6511
D6501
R6509
C6503
R6510
SW6510
D6503
D6510
D6509
D6508
D6505
D6506
D6507
D6504
R6551
VR3004
PICTURE VR
VR2007
TRACKING
C6502
R6515
SW6522
RESET
SW6515
MIN
SW6516
MIN
SW6514
HOUR
SW6513
DAY
SW6512
OFF
SW6511
ON
PRO
CLO
TP7510
R7518
QR7515
DTC114A
R7521
VJ B07261

P6201 TO TIMER & OPERATION (1)

1	G N D
2	V T R Ⓛ
3	KEY SCAN 2
4	E 02
5	KEY SCAN 1
6	POWER SW
7	+12.7 V
8	AI 0

JB TO CHANNEL PRESET

1	EO 0
2	AI 0
3	AI 1
4	+12.7 V
5	EO 2
6	CO 1
7	————

P6505 TO MAIN

1	P 00
2	SP Ⓛ
3	EXCEPT REC Ⓗ
4	TRACKING
5	PICTURE CTL
6	————
7	————

P6504 TO MAIN

1	P 13
2	P 12
3	P 11
4	P 10
5	P 03
6	P 02
7	P 01

JA TO CHANNEL PRESET

1	CH.G (C$\bar{O}$4)
2	REG 5V
3	RST Ⓛ
4	CLK1 (4MHz)
5	REG −30V
6	CH 1 (DO 0)
7	CH 2 (DO 1)
8	CH 3 (DO 2)
9	CH 4 (DO 3)
10	CH 5 (DO 4)
11	————

P6501 TO OPERATION (2)

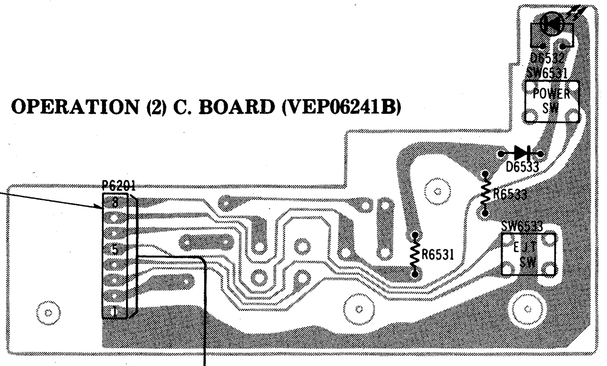
1	G N D
2	————
3	KEY SCAN 2
4	E 02
5	KEY SCAN 1
6	POWER SW
7	+12.7 V
8	AI 0

P6502 TO MAIN

1	+12.7V
2	POWER SW
3	AC 5.8V
4	AC 5.8V
5	REG −30V
6	REG 5V
7	KEY SCAN
8	SERIAL DATA
9	SERIAL CLOCK
10	GND

TION (1) (VEP06240A), OPERATION (2) (VEP06241B) & CH PRESET (VEP07261W) CIRCUIT BOARDS

OPERATION (2) C. BOARD (VEP06241B)


P6201
Q6531
SW6531
POWER SW
D6533
R6533
R6531
SW6533
EJT SW

P6201 TO TIMER & OPERATION (1)

1	GND
2	VTR Ⓛ
3	KEY SCAN 2
4	E 02
5	KEY SCAN 1
6	POWER SW
7	+12.7V
8	AI 0

P6505 TO MAIN

1	P 00
2	SP Ⓛ
3	EXCEPT REC Ⓗ
4	TRACKING
5	PICTURE CTL
6	———
7	———

P6504 TO MAIN

1	P 13
2	P 12
3	P 11
4	P 10
5	P 03
6	P 02
7	P 01

JA TO CHANNEL PRESET

1	CH.G (CŌ4)
2	REG 5V
3	RST Ⓛ
4	CLK1 (4MHz)
5	REG -30V
6	CH 1 (DO 0)
7	CH 2 (DO 1)
8	CH 3 (DO 2)
9	CH 4 (DO 3)
10	CH 5 (DO 4)
11	———

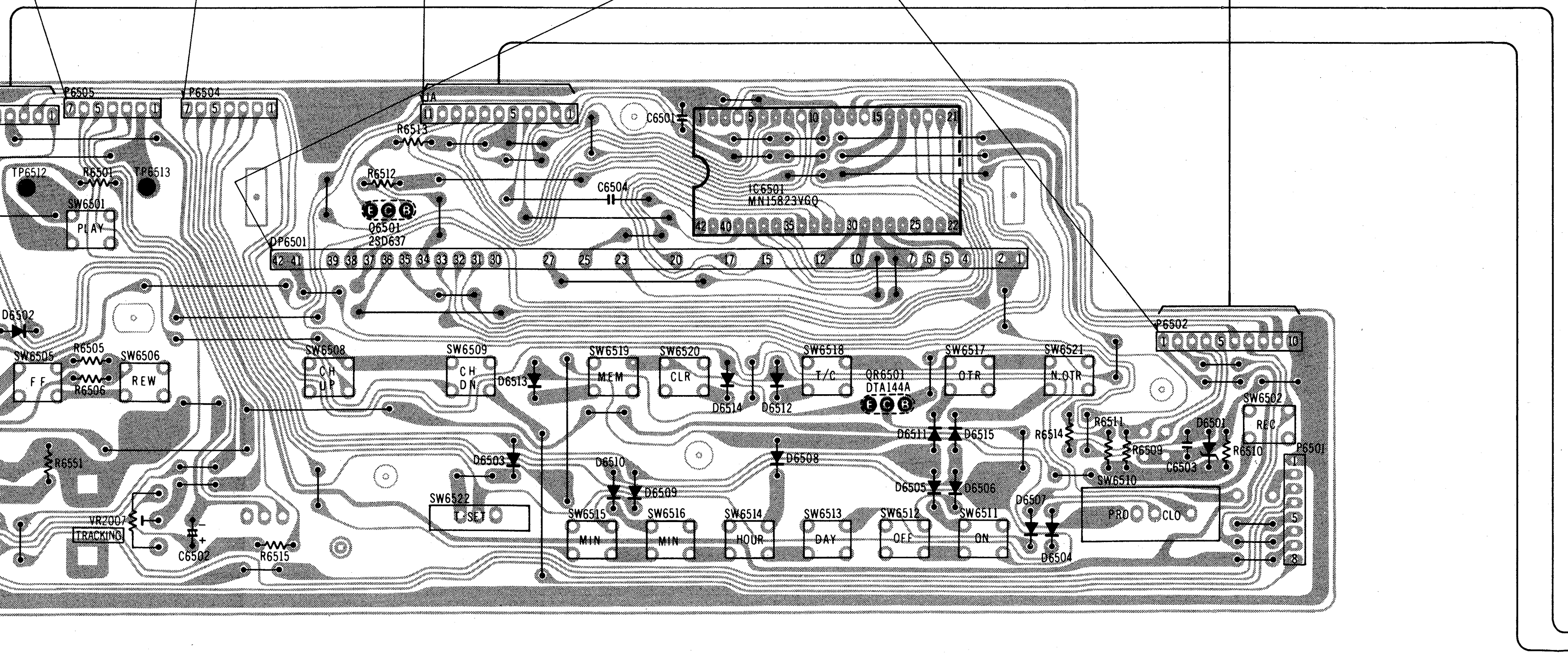
P6501 TO OPERATION (2)

1	GND
2	———
3	KEY SCAN 2
4	E 02
5	KEY SCAN 1
6	POWER SW
7	+12.7 V
8	AI 0

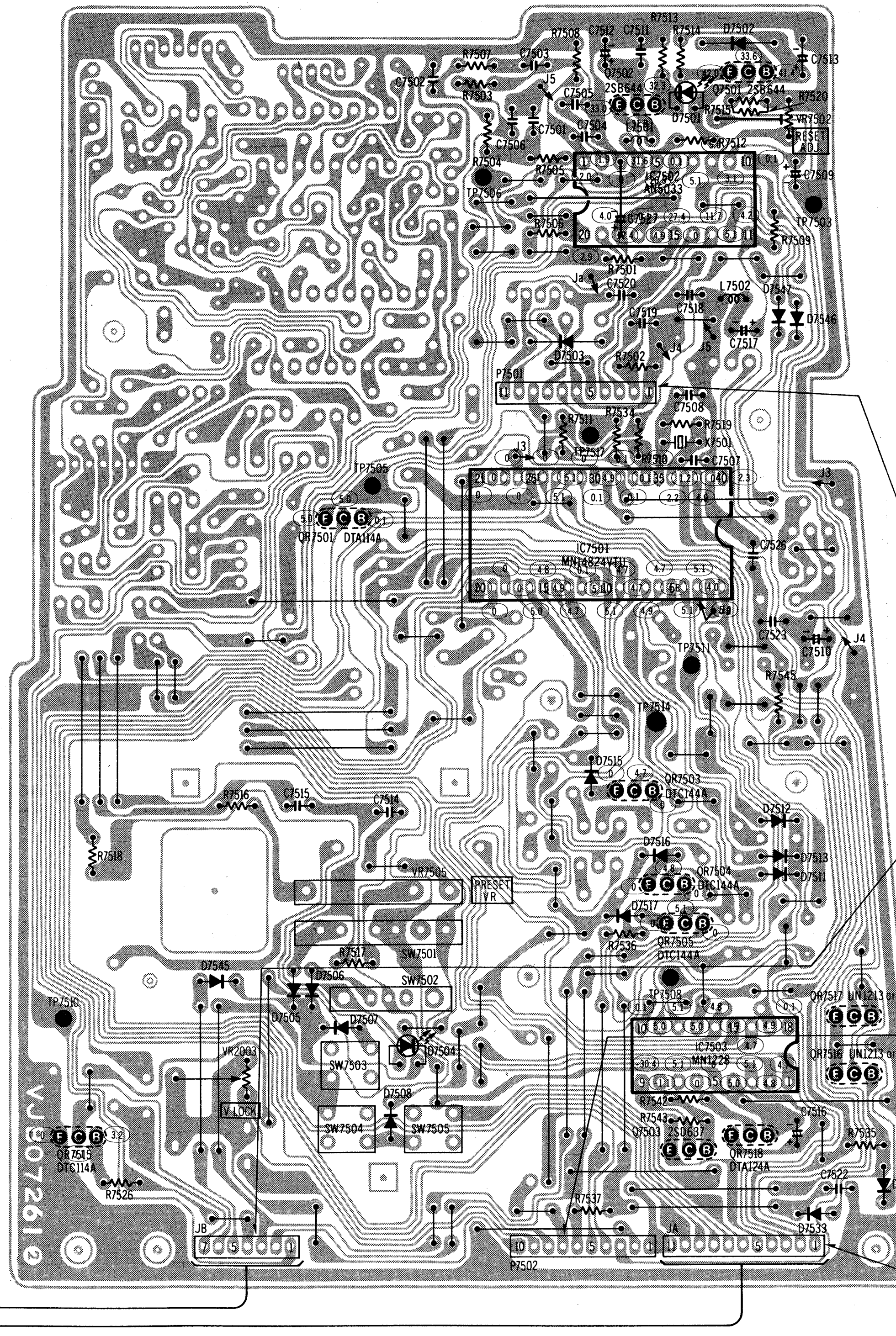
P6502 TO MAIN

1	+12.7V
2	POWER SW
3	AC 5.8V
4	AC 5.8V
5	REG -30V
6	REG 5V
7	KEY SCAN
8	SERIAL DATA
9	SERIAL CLOCK
10	GND

N (1) C. BOARD (VEP06240A)


P6505
P6504
JA
TP6512
R6501
TP6513
SW6501
PLAY
R6513
R6512
Q6501
2SD637
C6501
C6504
IC6501
MN15823VGQ
P6501
SW6508
CH UP
SW6509
CH DN
SW6519
MEM
SW6520
CLR
SW6518
T/C
QR6501
DTA144A
SW6517
OTR
SW6521
N.OTR
P6502
SW6502
REC
P6503
SW6505
FF
R6505
SW6506
REW
R6506
R6551
VR2007
TRACKING
C6502
R6515
SW6522
T.SET
SW6515
MIN
SW6516
MIN
SW6514
HOUR
SW6513
DAY
SW6512
OFF
SW6511
ON
SW6510
PRO
CLO
D6502
D6503
D6504
D6505
D6506
D6507
D6508
D6509
D6510
D6511
D6512
D6513
D6514
D6515
D6501
R6509
R6510
R6511
R6514
C6503

CH PRESET C. BOARD (VEP07261W)


R7507
R7508
C7512
C7511
R7513
R7514
D7502
C7513
C7503
C7502
J5
C7505
2SB644
Q7502
Q7501
2SB644
R7520
VR7502
RESET ADJ
R7503
D7501
R7512
C7501
C7504
L7501
R7504
R7505
IC7502
AN6033
C7509
TP7506
R7506
TP7503
R7509
R7501
C7520
L7502
D7547
D7546
C7519
C7518
C7517
J4
D7503
R7502
P7501
C7508
R7534
R7511
R7519
X7501
R7510
C7507
J3
TP7505
QR7501
DTA114A
IC7501
MN14824VT11
C7526
TP7511
C7523
C7510
R7543
TP7514
D7515
QR7503
DTC144A
D7512
R7516
C7515
C7514
R7518
D7516
QR7504
DTC144A
D7513
D7511
VR7506
PRESET VR
D7517
QR7505
DTC144A
R7536
R7517
SW7501
D7545
D7506
SW7502
TP7510
D7505
D7507
D7504
TP7508
QR7517
UN1213 or DTC144A
IC7503
MN1228
QR7516
UN1213 or DTC144A
VR2003
V LOCK
SW7503
D7508
SW7504
SW7505
R7542
R7543
Q7503
2SD637
QR7518
DTA124A
D7516
R7535
QR7515
DTC114A
R7526
R7537
C7522
D7532
D7533
JB
P7502
JA
VJ507261②

P7501 (TO TV DEMODULATOR)

1	GND
2	BS
3	BV
4	BU
5	BT
6	GND
7	AFC DEF
8	AUDIO DEF (FTZ)
9	AUDIO DEF
10	VIDEO
11	+12.0V

JB (TO TIMER OPERATION)

1	E00
2	AI0
3	AI1
4	+12.7V (SW)
5	E02
6	CO1
7	———

P7502 (TO MAIN)

1	———
2	GND
3	UNREG +45V
4	CH LOCK
5	TIMER N/P
6	TIMER REC
7	EE/VV
8	V LOCK
9	———
10	V LOCK (COM)

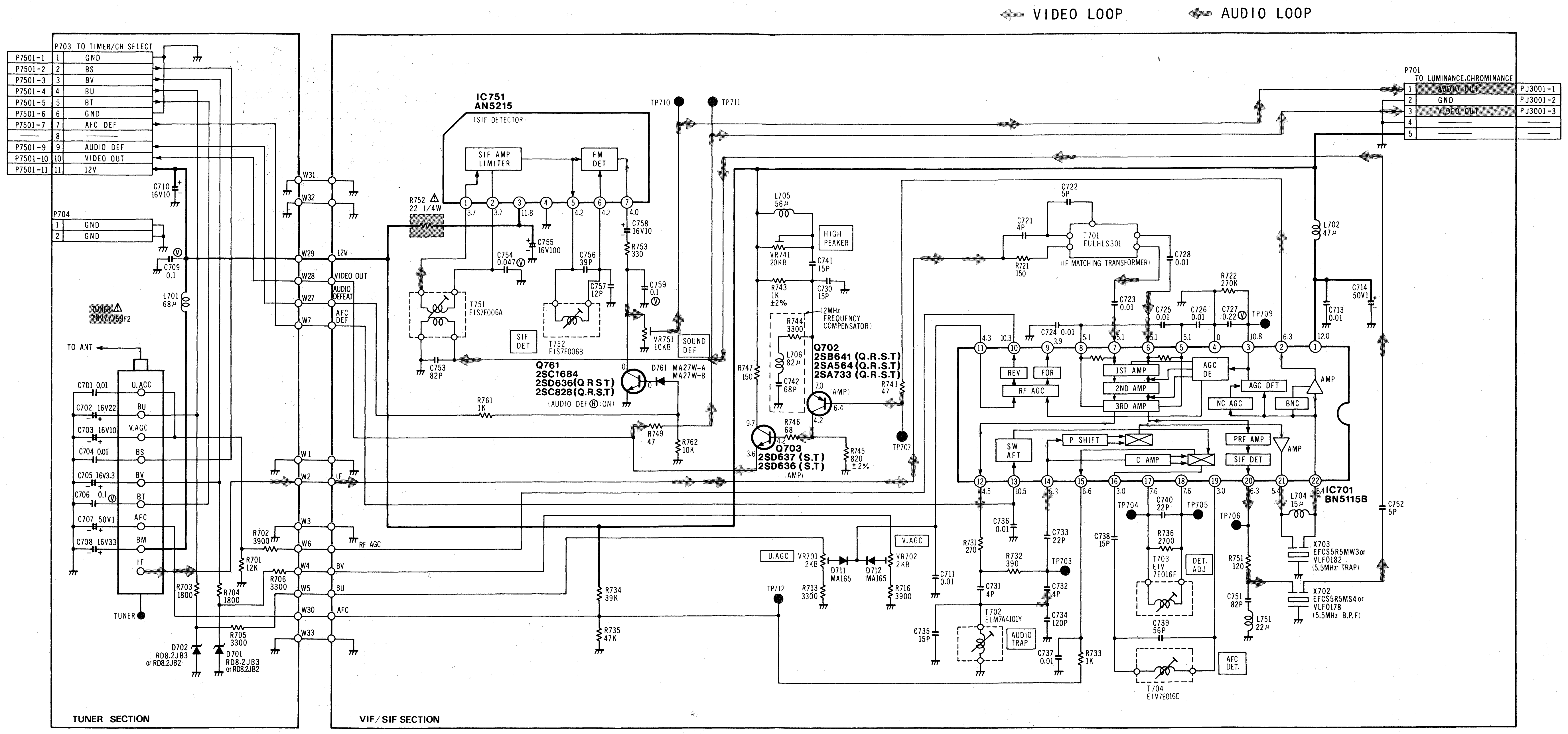
JA (TO TIMER OPERATION)

1	CH.G (CO4)
2	REG +5V
3	RST Ⓛ
4	CLK 1 (4MHz)
5	REG -30V
6	CH 1 (DO 0)
7	CH 2 (DO 1)
8	CH 3 (DO 2)
9	CH 4 (DO 3)
10	CH 5 (DO 4)
11	———

2 3 4 5 6 7 8 9 10 11

Next Page:
TV DEMODULATOR Section

3-19. TV DEMODULATOR SCHEMATIC DIAGRAM


VIDEO LOOP
AUDIO LOOP
P703 TO TIMER/CH SELECT
P7501-1 1 GND
P7501-2 2 BS
P7501-3 3 BV
P7501-4 4 BU
P7501-5 5 BT
P7501-6 6 GND
P7501-7 7 AFC DEF
8
P7501-9 9 AUDIO DEF
P7501-10 10 VIDEO OUT
P7501-11 11 12V
C710 16V10
P704
1 GND
2 GND
C709 0.1
L701 68μ
TUNER ⚠ TNV77759F2
TO ANT
C701 0.01
C702 16V22
C703 16V10
C704 0.01
C705 16V3.3
C706 0.1
C707 50V1
C708 16V33
U.ACC
BU
V.AGC
BS
BV
BT
AFC
BM
IF
TUNER
R703 1800
R704 1800
R701 12K
R702 3900
R706 3300
R705 3300
D702 RD8.2JB3 or RD8.2JB2
D701 RD8.2JB3 or RD8.2JB2
W31
W32
W29
W28
W27
W7
W1
W2
W3
W6
W4
W5
W30
W33
12V
VIDEO OUT
AUDIO DEFEAT
AFC DEF
IF
RF AGC
BV
BU
AFC
TUNER SECTION
VIF/SIF SECTION
IC751 AN5215
(SIF DETECTOR)
SIF AMP LIMITER
FM DET
R752 ⚠ 22 1/4W
3.7
3.7
11.8
4.2
4.2
4.0
C758 16V10
C755 16V100
C754 0.047
C756 39P
R753 330
C757 12P
C759 0.1
T751 EIS7E006A
T752 EIS7E006B
SIF DET
VR751 10KB
SOUND DEF
C753 82P
Q761 2SC1684 2SD636(Q R S T) 2SC828(Q.R.S.T)
(AUDIO DEF Ⓗ:ON)
D761 MA27W-A MA27W-B
R761 1K
R749 47
R762 10K
TP710
TP711
L705 56μ
HIGH PEAKER
VR741 20KB
C741 15P
R743 1K ±2%
C730 15P
R744 3300
(2MHz FREQUENCY COMPENSATOR)
L706 82μ
C742 68P
R747 150
Q702 2SB641 (Q.R.S.T) 2SA564 (Q.R.S.T) 2SA733 (Q.R.S.T)
(AMP)
7.0
6.4
4.2
R741 47
R746 68
9.7
3.6
Q703 2SD637 (S.T) 2SD636 (S.T)
(AMP)
R745 820 ±2%
TP707
R734 39K
R735 47K
TP712
U.AGC
VR701 2KB
D711 MA165
D712 MA165
VR702 2KB
V.AGC
R713 3300
R716 3900
C711 0.01
C735 15P
C722 5P
C721 4P
T701 EULHLS301
(IF MATCHING TRANSFORMER)
R721 150
C728 0.01
R722 270K
C723 0.01
C725 0.01
C726 0.01
C727 0.22
TP709
C724 0.01
4.3
10.3
3.9
5.1
5.1
5.1
5.1
0
10.8
6.3
12.0
REV
FOR
RF AGC
1ST AMP
2ND AMP
3RD AMP
AGC DE
AGC DFT
NC AGC
BNC
AMP
SW AFT
P SHIFT
C AMP
PRF AMP
SIF DET
AMP
4.5
10.5
5.3
6.6
3.0
7.6
7.6
3.0
6.3
5.4
5.4
IC701 BN5115B
L702 47μ
C714 50V1
C713 0.01
C752 5P
C736 0.01
C733 22P
R731 270
R732 390
TP703
C731 4P
C732 4P
T702 ELM7A4101Y
C734 120P
AUDIO TRAP
C737 0.01
R733 1K
C738 15P
TP704
C740 22P
TP705
R736 2700
T703 EIV 7E016F
DET. ADJ
C739 56P
T704 EIV7E016E
AFC DET.
TP706
R751 120
C751 82P
L751 22μ
L704 15μ
X703 EFCS5R5MW3 or VLF0182 (5.5MHz TRAP)
X702 EFCS5R5MS4 or VLF0178 (5.5MHz B.P.F)
P701 TO LUMINANCE.CHROMINANCE
1 AUDIO OUT PJ3001-1
2 GND PJ3001-2
3 VIDEO OUT PJ3001-3
4
5

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

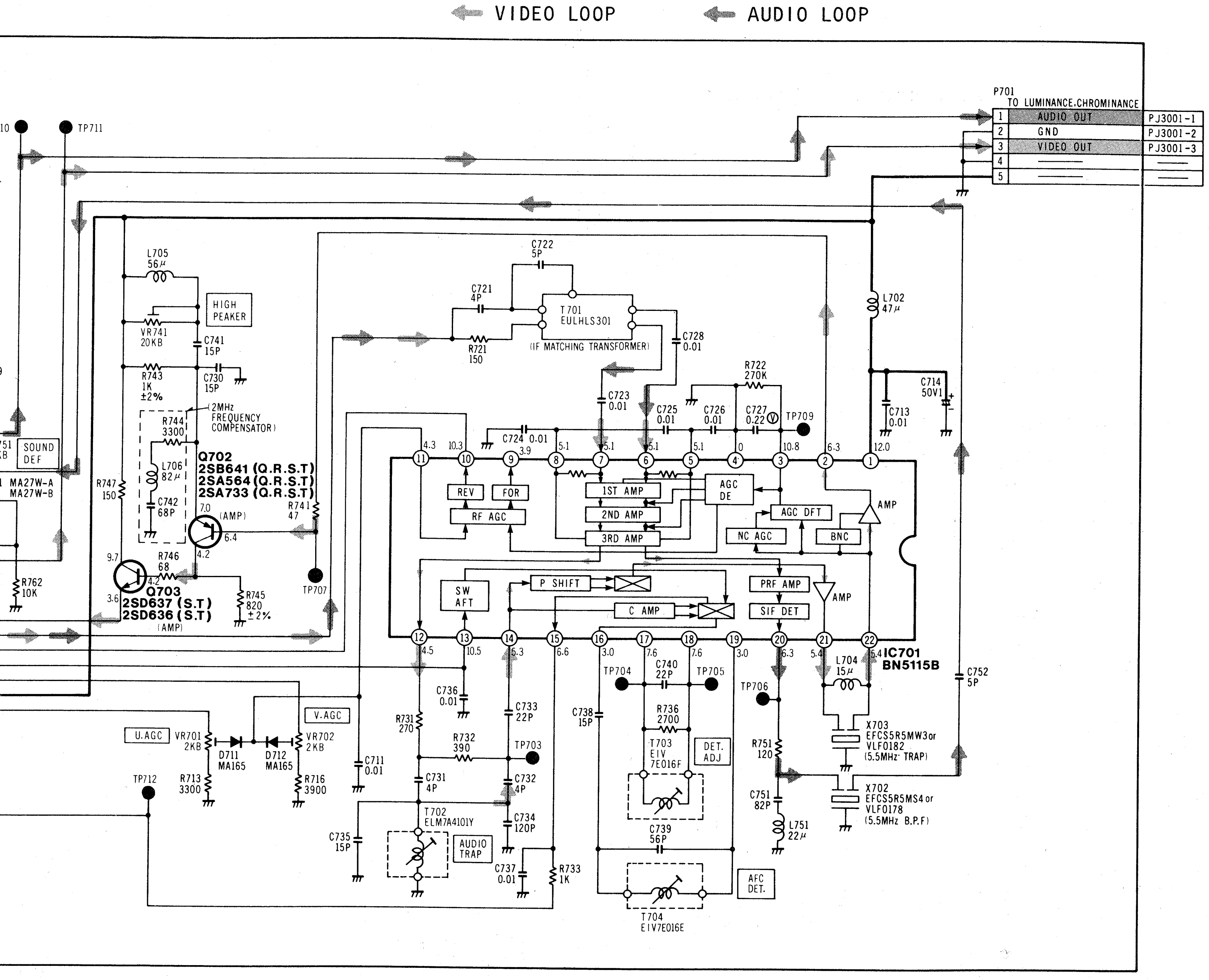
3-20. TV DE

P701 **(TO MAIN)**

1	AUDIO OUT
2	GND
3	VIDEO OUT
4	———
5	———

P703 **(TO TIMER)**

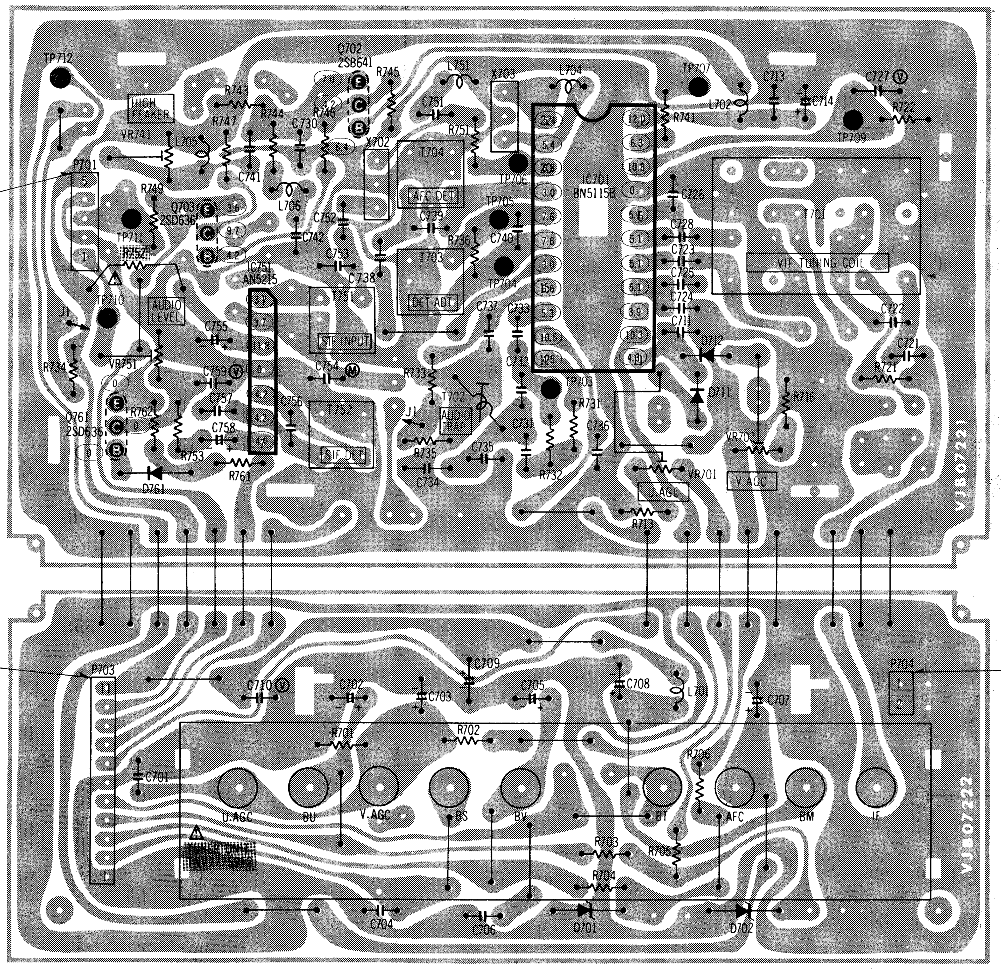
1	GND
2	BS
3	BV
4	BU
5	BT
6	GND
7	AFC DEF
8	———
9	AUDIO DEF
10	VIDEO OUT
11	12V


VIDEO LOOP
AUDIO LOOP
P701
TO LUMINANCE.CHROMINANCE
1 AUDIO OUT PJ3001-1
2 GND PJ3001-2
3 VIDEO OUT PJ3001-3
4
5
TP711
L705 56μ
HIGH PEAKER
VR741 20KB
C741 15P
R743 1K ±2%
C730 15P
R744 3300
2MHz FREQUENCY COMPENSATOR
L706 82μ
C742 68P
R747 150
Q702 2SB641 (Q.R.S.T) 2SA564 (Q.R.S.T) 2SA733 (Q.R.S.T)
(AMP)
R741 47
R746 68
Q703 2SD637 (S.T) 2SD636 (S.T) (AMP)
R745 820 ±2%
R762 10K
SOUND DEF
MA27W-A MA27W-B
TP707
C722 5P
C721 4P
T701 EULHLS301
R721 150
(IF MATCHING TRANSFORMER)
C728 0.01
R722 270K
C723 0.01
C724 0.01
C725 0.01
C726 0.01
C727 0.22
TP709
L702 47μ
C714 50V1
C713 0.01
REV
FOR
RF AGC
1ST AMP
2ND AMP
3RD AMP
AGC DE
AGC DFT
NC AGC
BNC
AMP
SW AFT
P SHIFT
C AMP
PRF AMP
SIF DET
IC701 BN5115B
C752 5P
L704 15μ
X703 EFCS5R5MW3 or VLF0182 (5.5MHz TRAP)
X702 EFCS5R5MS4 or VLF0178 (5.5MHz B.P.F)
R751 120
C751 82P
L751 22μ
TP704
TP705
TP706
C740 22P
R736 2700
T703 EIV 7E016F
DET. ADJ
C739 56P
T704 EIV7E016E
AFC DET.
C738 15P
C736 0.01
C733 22P
R731 270
R732 390
TP703
C731 4P
C732 4P
T702 ELM7A4101Y
AUDIO TRAP
C734 120P
C735 15P
C737 0.01
R733 1K
V.AGC
U.AGC
VR701 2KB
D711 MA165
D712 MA165
VR702 2KB
R716 3900
C711 0.01
TP712
R713 3300

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

3-20. TV DEMODULATOR CIRCUIT BOARD (VEB0047R1)


TP712
HIGH PEAKER
VR741
Q702 2SB641
Q703 2SD636
IC751 AN5215
IC701 BN5115B
T701
VIF TUNING COIL
AFC DET
DET ADJ
SIF DET
T704
T703
T752
AUDIO LEVEL
AUDIO TRAP
SIF INPUT
V.AGC
U.AGC
TP709
TP707
TP704
TP705
TP706
TP710
TP711
VR751
VR702
VR701
D761
D711
D712
VJB07221
VJB07222
P703
P704
TUNER UNIT
U.AGC
BU
V.AGC
BS
BV
BT
AFC
BM
IF
D701
D702
L701
C701
C702
C703
C704
C705
C706
C707
C708
C709
C710
R701
R702
R703
R704
R705
R706

P701 (TO MAIN)

1	AUDIO OUT
2	GND
3	VIDEO OUT
4	———
5	———

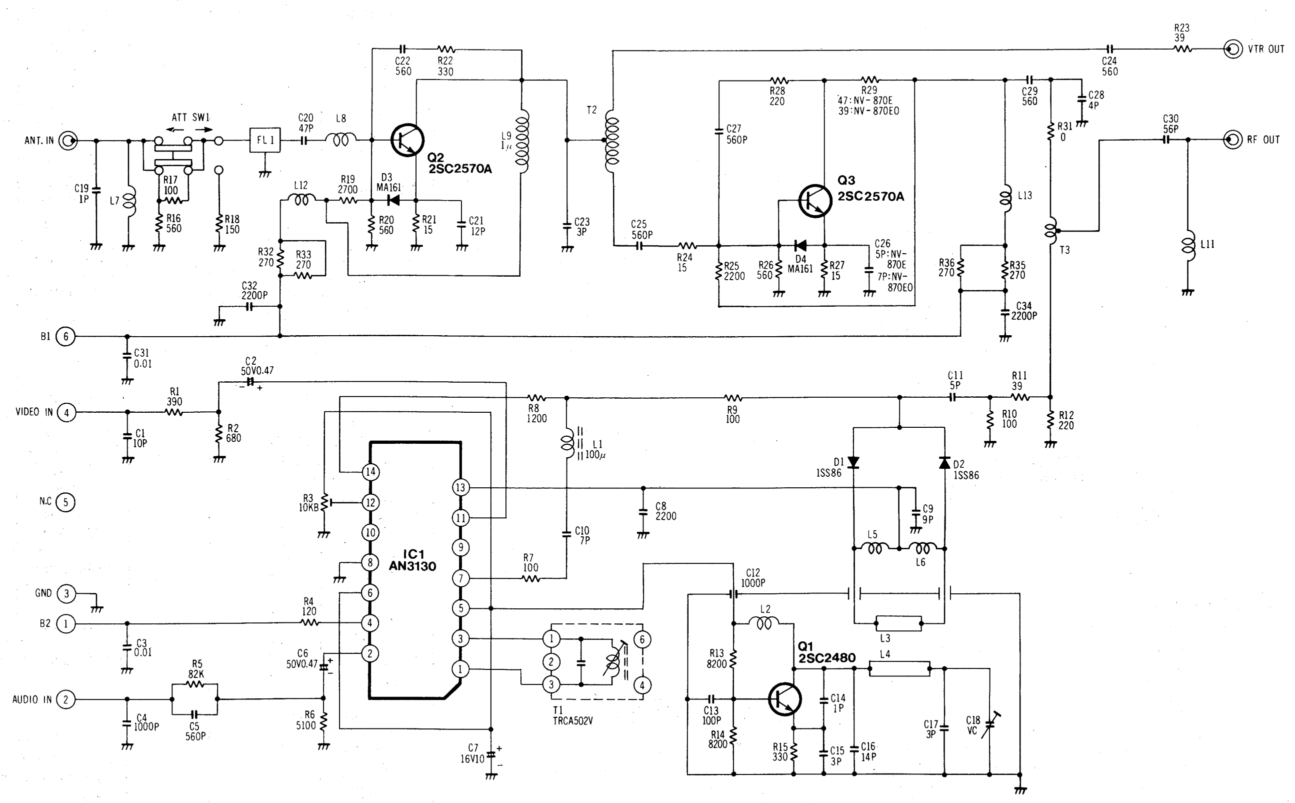
P703 (TO TIMER)

1	GND
2	BS
3	BV
4	BU
5	BT
6	GND
7	AFC DEF
8	———
9	AUDIO DEF
10	VIDEO OUT
11	12V

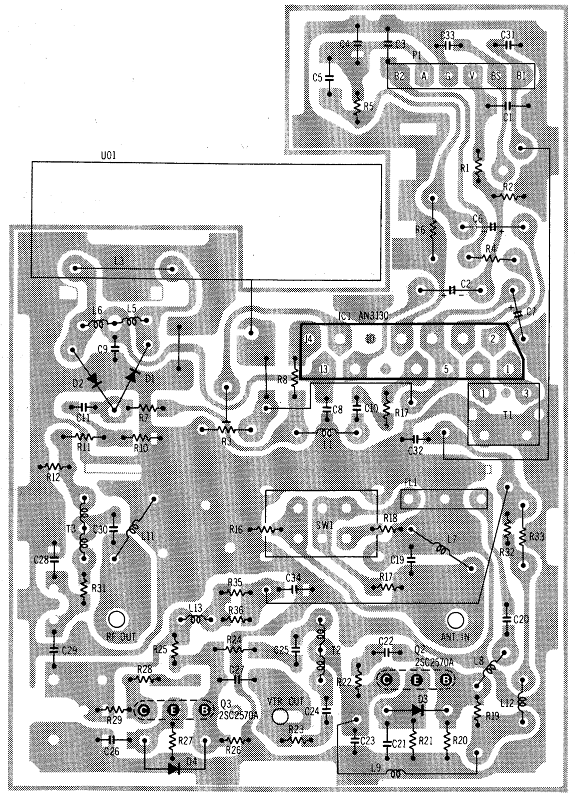
P704

1	GND
2	GND

3-21. RF CONVERTER SCHEMATIC DIAGRAM
— UNIT NO. ENC87771 —

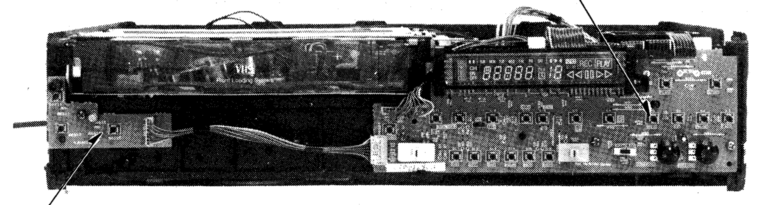

ANT. IN
ATT SW1
FL1
VTR OUT
RF OUT
B1 ⑥
VIDEO IN ④
NC ⑤
GND ③
B2 ①
AUDIO IN ②
Q2 2SC2570A
Q3 2SC2570A
Q1 2SC2480
IC1 AN3130
T1 TRCA502V
T2
T3
D1 1SS86
D2 1SS86
D3 MA161
D4 MA161
R29 47: NV-870E 39: NV-870EO
C26 5P: NV-870E 7P: NV-870EO

3-22. RF CONVERTER CIRCUIT BOARD
— UNIT NO. ENC87771 —


U01
IC1 AN3130
B2 A V BS B1
SW1
FL1
RF OUT
ANT. IN
VTR OUT
Q2 2SC2570A
Q3 2SC2570A

3-23. CIRCUIT BOARD LAYOUT

FRONT VIEW



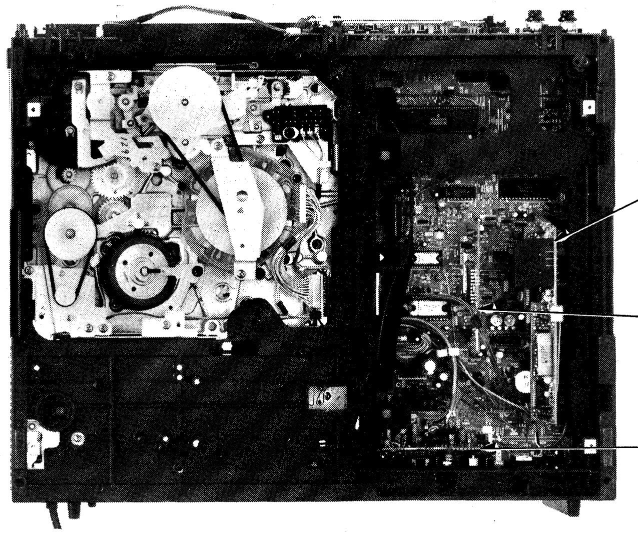
TIMER & OPERATION (1) C. BOARD

OPERATION (2) C. BOARD

POWER — TRANSFO
C. BOARD

HEAD AMP
C. BOARD

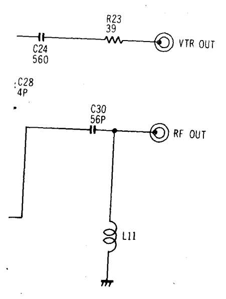
BOTTOM VIEW



LUMINANCE & CHROMINANCE C. BOARD

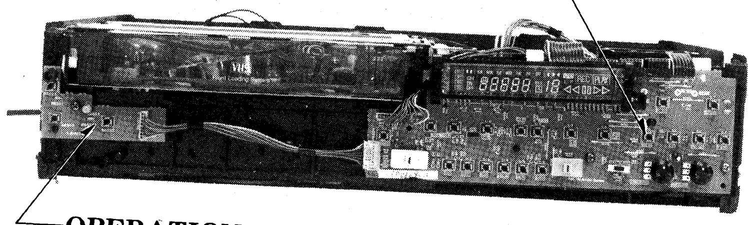
NOISE ADVANCE PACK C. BOARD

AUDIO PACK C. BOARD

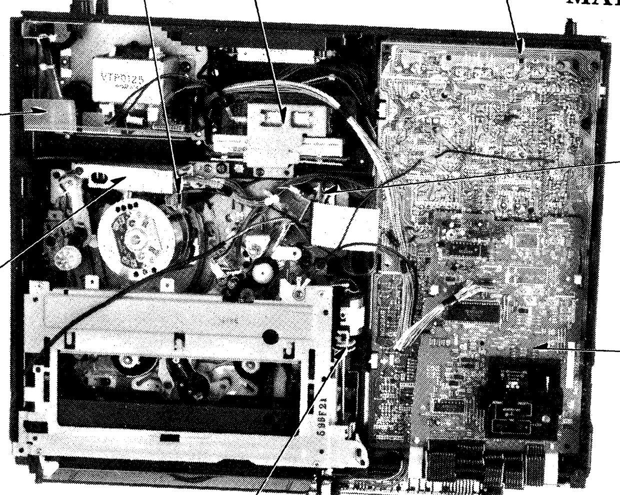

C24
560
R23
39
VTR OUT
C28
4P
C30
56P
RF OUT
L11

3-23. CIRCUIT BOARD LAYOUT

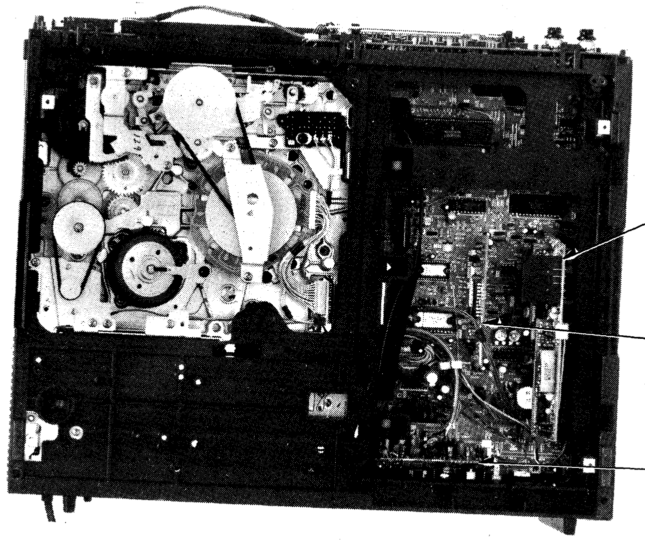
FRONT VIEW


TIMER & OPERATION (1) C. BOARD
OPERATION (2) C. BOARD

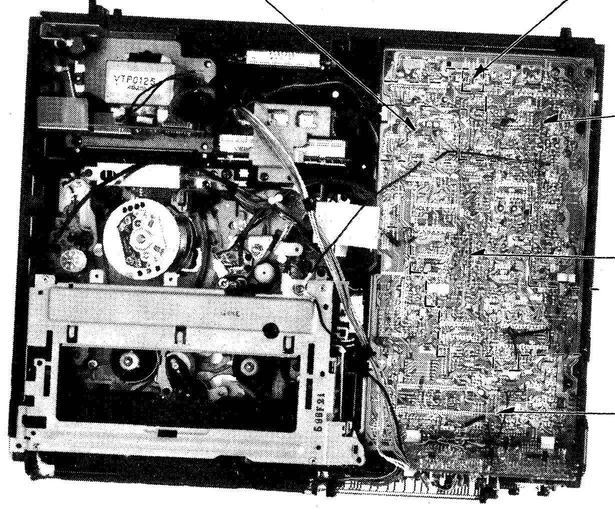
TOP VIEW (1)


CYLINDER HEATER C. BOARD
TV DEMODULATOR C. BOARD
MAIN C. BOARD
POWER TRANSFORMER C. BOARD
MECHANISM CONNECTION C. BOARD
HEAD AMP PACK C. BOARD
CH PRESET C. BOARD
FRONT LOADING C. BOARD

BOTTOM VIEW


LUMINANCE & CHROMINANCE C. BOARD
NOISE ADVANCE PACK C. BOARD
AUDIO PACK C. BOARD

TOP VIEW (2)


Power Supply Section
Audio Section
Luminance & Chrominance Section
Servo Section
System Control Section

Next Page:
MAIN CIRCUIT BOARD Section

3-24. MAIN CIRCUIT BOARD (VEP03236D)

LUMINANCE & CHROMINANCE PACK

1	REC CHROMA
2	GND
3	VSS
4	————
5	REC Y
6	————
7	————
8	RF IN
9	ART. V-SYNC
10	EE Ⓗ
11	Q VR
12	D.O.C
13	PIC. CONT
14	VIDEO OUT
15	CONVERTER OUT
16	————
17	SEARCH Ⓛ
18	————
19	————
20	REG 5V
21	EX REC Ⓗ
22	TEST Ⓗ
23	COLOUR Ⓗ
24	ROTARY SW
25	————
26	————
27	————
28	————
29	————
30	4.43MHz
31	P.B. CHROMA
32	GND
33	REC Ⓗ
34	VIDEO IN

PJ3001 TO TV DEMODU.

1	AUDIO IN
2	GND
3	VIDEO IN

PJ3002 TO RF & ANTENNA

1	————
2	AUDIO OUT
3	GND
4	VIDEO OUT
5	VTR 12V
6	N.SW 12V

P3003 TO HEAD AMP

1	D REC 12V
2	REC CURR
3	H. SW
4	STILL Ⓗ
5	GND
6	EX REC Ⓗ
7	CHROMA IN
8	RF IN

NOISE ADVANCE PACK

12	CUE / REV
13	V LOCK
14	REG 5V
15	H.SW
16	CAP CURR
17	STILL Ⓗ
18	ART V SYNC
19	F. ADV
20	————
21	————
22	D.O.C
23	GND

JB TO TIMER

1	P00
2	————
3	EX. REC Ⓗ
4	TRACKING
5	PIC CONT
6	INPUT SELECT
7	————

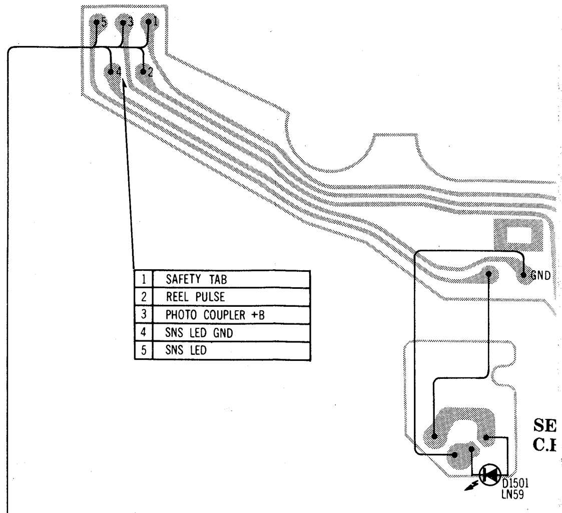
JA TO TIMER

1	P13
2	P12
3	P11
4	P10
5	P03
6	P02
7	P01

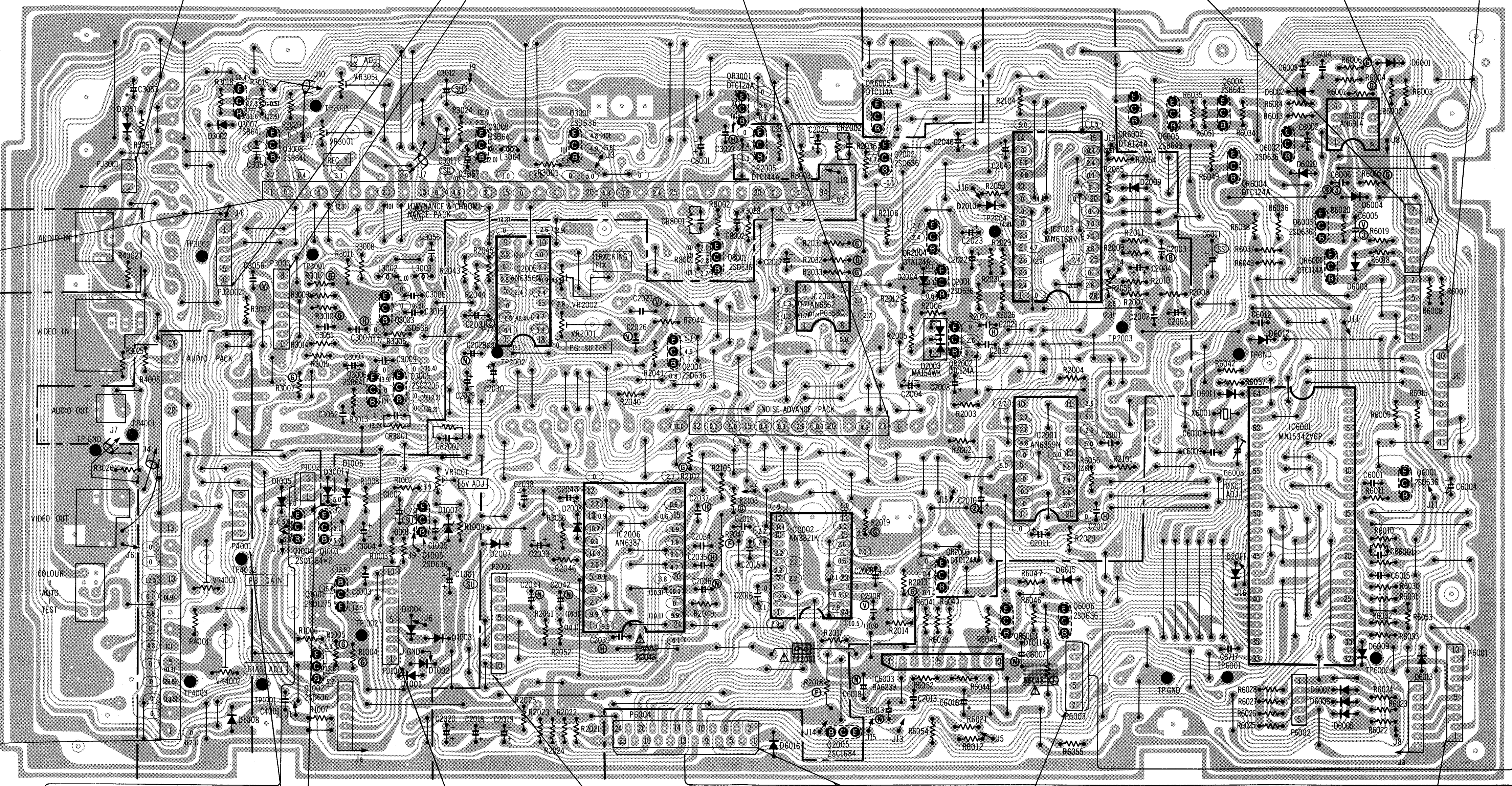
JC TO CH SELECT

1	VTR Ⓛ
2	GND
3	UNREG 45V
4	CH LOCK
5	TIMER N/P
6	TIMER REC
7	EE / VV
8	V LOCK
9	————
10	V LOCK (COM)(STILL Ⓗ)

REEL SENSOR C.BOARD (VJB00D11)


5
3
1
4
2
GND
D1501
LN59
SE
C.F

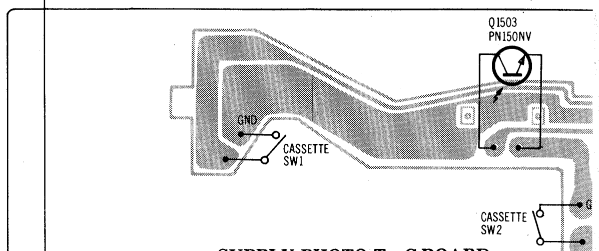
1	SAFETY TAB
2	REEL PULSE
3	PHOTO COUPLER +B
4	SNS LED GND
5	SNS LED


F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
AUDIO IN
VIDEO IN
AUDIO OUT
VIDEO OUT
COLOUR
AUTO TEST
TP GND
J7
PJ3001
PJ3002
TP3002
TP3001
TP4001
TP4002
TP4003
TP1001
TP1002
TP2001
TP2002
TP2003
TP2004
TP6001
TP6002
TPGND
TP.GND
AUDIO PACK
LUMINANCE & CHROMINANCE PACK
NOISE ADVANCE PACK
Q ADJ
VR3051
VR3001
VR4001
VR4002
VR1001
VR2001
VR2002
PB GAIN
BIAS ADJ
5V ADJ
TRACKING
PG SIFTER
OSC ADJ
IC2001
AN6359N
IC2002
AN3821K
IC2003
MN6188VF
IC2004
AN6562
IC2005
AN6356N
IC2006
AN6387
IC6001
MN15342VGP
IC6002
AN6914
IC6003
BA6239
Q1001
2SD1275
Q1002
2SD636
Q1004
2SC1384
Q1005
2SD636
Q2005
2SC1684
Q3001
2SD636
Q3003
2SD636
Q3006
2SB641
Q3007
2SB641
Q3008
2SB641
Q6001
DTC114A
Q6003
2SD636
Q6004
DTC124A
Q6005
DTC114A
Q6006
2SD636
X6001
CR6001
CR2001
CR3001
CR8001
P1001
P1002
P2001
P3003
P4001
P6001
P6002
P6003
P6004
J1
J2
J3
J4
J5
J6
J8
J9
J10
J11
J13
J14
J15
J16
JA
JB
JC
Ja
D1001
D1002
D1003
D1004
D1005
D1006
D1007
D1008
D2001
D2003
D2004
D2007
D2008
D2009
D2010
D2011
D3001
D3002
D3051
D6001
D6002
D6004
D6005
D6006
D6007
D6010
D6011
D6012
D6013
D6015
D6016

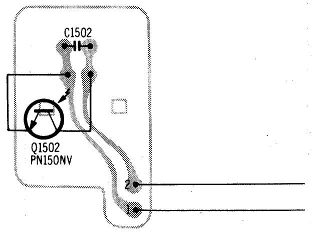
AUDIO PACK

1	D.REC 12V
2	GND (OSC)
3	A. ERASE
4	BIAS GAIN
5	A HEAD (R)
6	EX. REC Ⓗ
7	A. HEAD (P)
8	————
9	EE Ⓗ
10	REG 12V
11	————
12	P.B GAIN
13	RF AUDIO OUT
14	————
15	————
16	————
17	————
18	————
19	————
20	————
21	A. MUTE Ⓗ
22	GND (MAIN)
23	AUDIO OUT
24	AUDIO IN

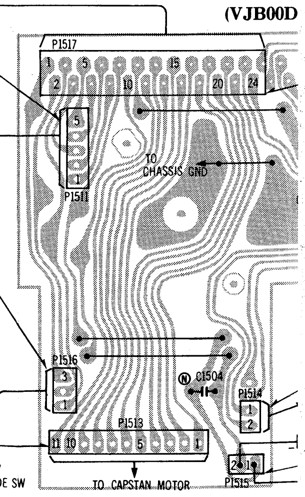
FRONT LOADING C.BOARD (VJB00D10)


Q1503
PN150NV
GND
CASSETTE SW1
CASSETTE SW2

SUPPLY PHOTO Tr. C.BOARD (VJB00C40)


C1502
Q1502
PN150NV
2
1

MECHANISM CONNECTION C.BOA (VJB00D


P1517
1
5
15
2
10
20
24
P1511
TO CHASSIS GND
P1516
C1504
P1514
P1513
P1515
TO MODE SW
TO CAPSTAN MOTOR

P1511

1	SAFETY TAB
2	REEL PULSE
3	THOTO +B
4	SNS LED GND
5	SNS LED

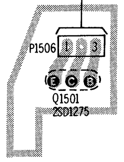
P1516

1	S3
2	S2
3	S1

P1513

1	VH−
2	H2+
3	H2−
4	M1
5	H1+
6	VH+
7	H1−
8	H3+
9	H3−
10	M3
11	M2

CYLINDER HEATER C.BOARD (VJB00D09)


P1506
1
3
Q1501
2SD1275

P4001 TO A/C HEAD

1	A. HEAD (R)
2	A. HEAD (W)
3	GND
4	A ERASE (Y)
5	CTL HEAD (A)

P1002 TO CYLINDER HEATER

1	Ⓑ POWER Tr.
2	Ⓒ
3	Ⓔ

PJ1001 TO POWER TRANS.

1	AC 5.8V
2	AC 5.8V
3	AC 10.5V
4	AC 10.5V
5	GND
6	GND
7	REG −30V
8	12V (NON SW)
9	UNREG 14.5V
10	UNREG 45V

P2001 TO CYLINDER MOTOR

1	M2
2	VH+
3	HES
4	M3
5	HEM
6	VH− (GND)
7	VM
8	$\overline{\text{HEM}}$
9	$\overline{\text{HES}}$
10	M1

P6004 TO MECHANISM CONNECTION / P6004

1	S1	2	S2
3	S3	4	PHOTO +B
5	SNS LED	6	LED GND
7	REEL PLS	8	SEFETY TAB
9	LOAD Ⓜ⊕	10	LOAD Ⓜ⊖
11	DEW	12	M2
13	M3	14	H3−
15	H3+	16	H1−
17	VH+	18	H1+
19	M1	20	H2−
21	H2+	22	VH−
23	CAP FG	24	FG GND

P6003 TO FRONT LOADING

1	FL Ⓜ⊕
2	FL Ⓜ⊖
3	GND
4	CAS SW2
5	CAS SW1
6	S PHOTO
7	T PHOTO

P6001 TO TIMER

1	12.7V
2	POWER SW
3	AC 5.8V
4	AC 5.8V
5	REG −30V
6	REG 5V
7	KEY SCAN
8	S.DATA
9	S.CLK
10	GND

NOISE ADVANCE PACK

12	CUE / REV
13	V LOCK
14	REG 5V
15	H.SW
16	CAP CURR
17	STILL Ⓗ
18	ART V SYNC
19	F. ADV
20	———
21	———
22	D.O.C
23	GND

JB TO TIMER

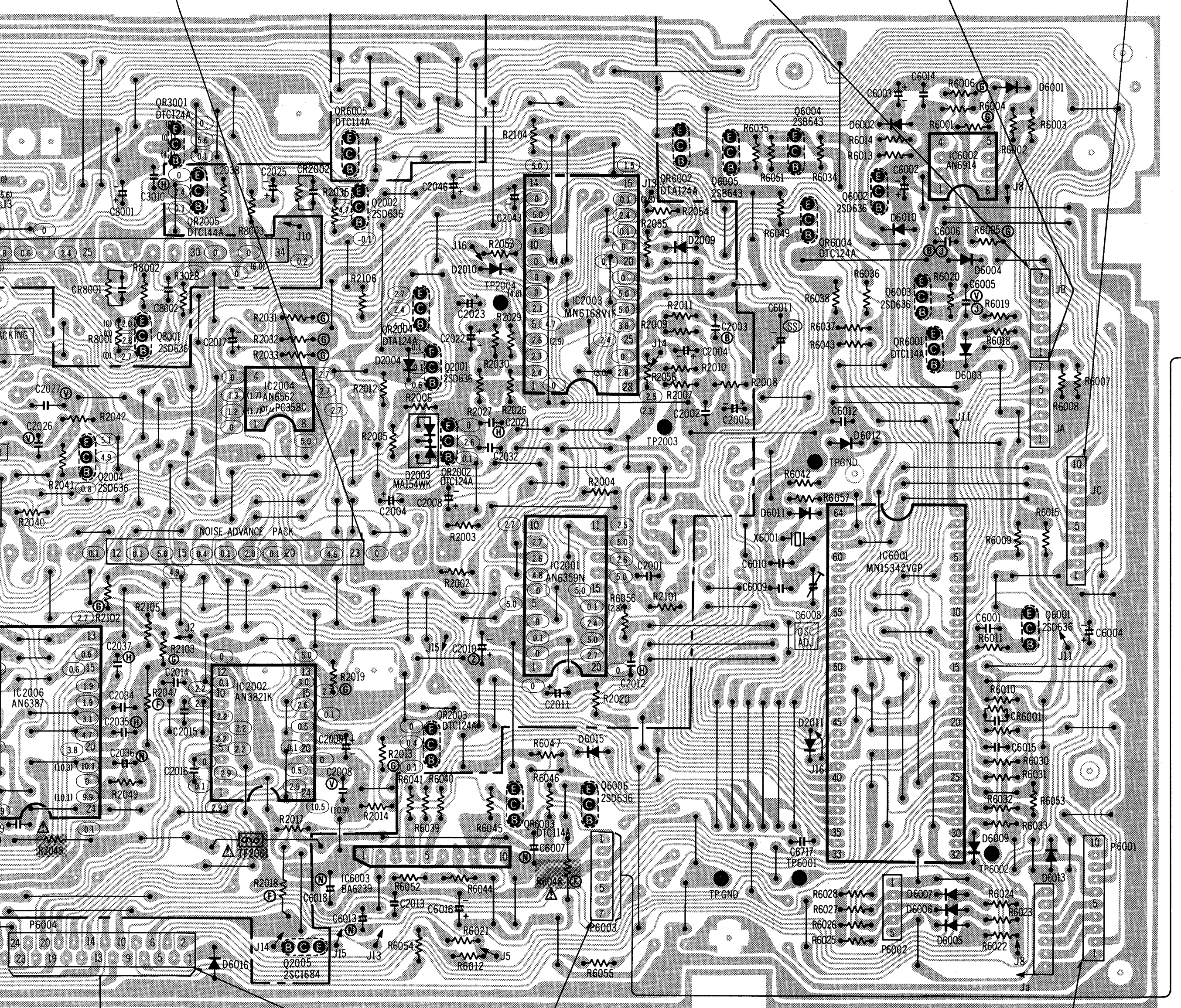
1	PØØ
2	———
3	EX. RECⒽ
4	TRACKING
5	PIC CONT
6	INPUT SELECT
7	———

JA TO TIMER

1	P13
2	P12
3	P11
4	P1Ø
5	PØ3
6	PØ2
7	PØ1

JC TO CH SELECT

1	VTR Ⓛ
2	GND
3	UNREG 45V
4	CH LOCK
5	TIMER N/P
6	TIMER REC
7	EE / VV
8	V LOCK
9	———
10	V LOCK (COM)(STILL Ⓗ)


QR3001
DTC124A
QR2005
DTC144A
QR6005
DTC144A
IC2004
AN6562
IC2003
MN6168VT
IC2001
AN6359N
IC2002
AN3821K
IC2006
AN6387
IC6001
MN15342VGP
IC6002
AN6914
IC6003
BA6239
Q2001
2SD636
Q2002
2SD636
Q2005
2SC1684
Q6001
2SD636
Q6002
2SD636
Q6003
2SD636
Q6004
2SB643
Q6005
2SB643
Q6006
2SD636
D6001
D6016
R6006
R6055
C6008
VCO ADJ
X6001
TP2003
TP6001
TP6002
TP GND
NOISE ADVANCE PACK
P6001
P6002
P6003
P6004
J8
J9
JA
JB
JC
5
6
7
8
9
10
11
12
13

2001 TO CYLINDER MOTOR

M2
VH+
HES
M3
HEM
VH⁻ (GND)
VM
HEM
HES
M1

P6004 TO MECHANISM CONNECTION / P6004

1	S1	2	S2
3	S3	4	PHOTO +B
5	SNS LED	6	LED GND
7	REEL PLS	8	SEFETY TAB
9	LOAD Ⓜ⊕	10	LOAD Ⓜ⊖
11	DEW	12	M2
13	M3	14	H3⁻
15	H3+	16	H1⁻
17	VH+	18	H1+
19	M1	20	H2⁻
21	H2+	22	VH⁻
23	CAP FG	24	FG GND

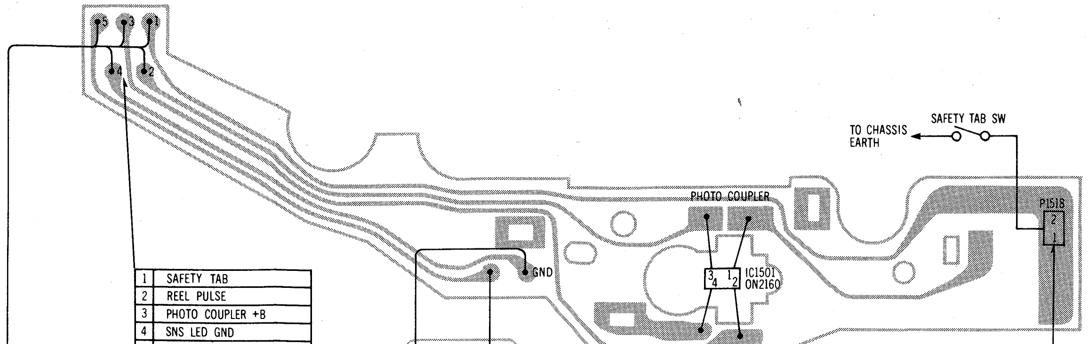
P6003 TO FRONT LOADING

1	FL Ⓜ⊕
2	FL Ⓜ⊖
3	GND
4	CAS SW2
5	CAS SW1
6	S PHOTO
7	T PHOTO

P6001 TO TIMER

1	12.7V
2	POWER SW
3	AC 5.8V
4	AC 5.8V
5	REG −30V
6	REG 5V
7	KEY SCAN
8	S.DATA
9	S.CLK
10	GND

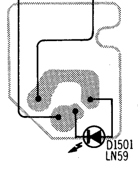
REEL SENSOR C.BOARD (VJB00D11)


TO CHASSIS EARTH
SAFETY TAB SW
PHOTO COUPLER
GND
IC1501
ON2160
P1518

1	SAFETY TAB
2	REEL PULSE
3	PHOTO COUPLER +B
4	SNS LED GND
5	SNS LED

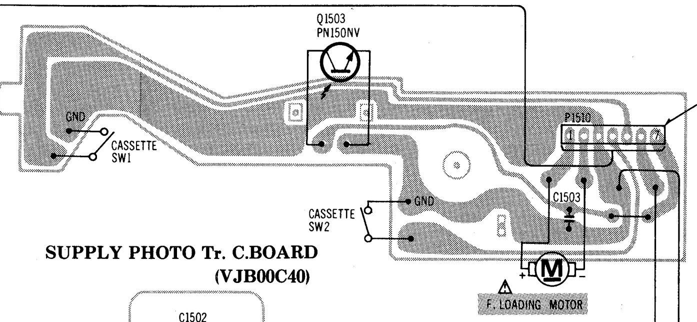
P1518

1	SAFETY TAB
2	———



SENSOR LED C.BOARD (VJB00C48)

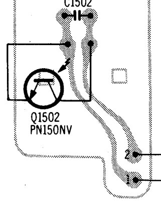
FRONT LOADING C.BOARD (VJB00D10)


Q1503
PN150NV
GND
CASSETTE SW1
CASSETTE SW2
GND
P1510
C1503
F. LOADING MOTOR

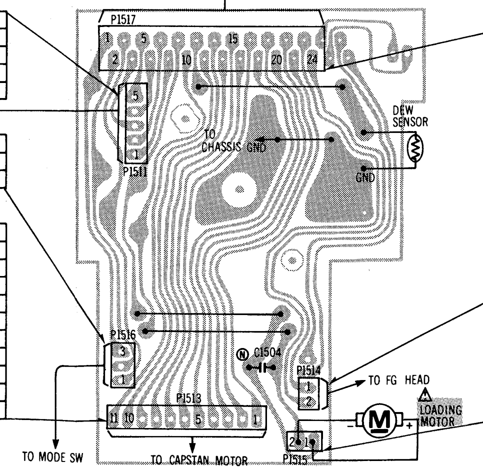
P1510

1	FRONT LOADING Ⓜ⊕
2	FRONT LOADING Ⓜ⊖
3	GND
4	CASSETTE SW2
5	CASSETTE SW1
6	SUPPLY PHOTO Tr
7	TAKEUP PHOTO Tr

SUPPLY PHOTO Tr. C.BOARD (VJB00C40)


C1502
Q1502
PN150NV

MECHANISM CONNECTION C.BOARD (VJB00D08)


P1517
P1511
TO CHASSIS GND
DEW SENSOR
GND
P1516
C1504
P1514
TO FG HEAD
P1513
LOADING MOTOR
P1515
TO MODE SW
TO CAPSTAN MOTOR

P1511

1	SAFETY TAB
2	REEL PULSE
3	THOTO +B
4	SNS LED GND
5	SNS LED

P1516

1	S3
2	S2
3	S1

P1513

1	VH−
2	H2+
3	H2−
4	M1
5	H1+
6	VH+
7	H1−
8	H3+
9	H3−
10	M3
11	M2

P1517

1	S1	2	S2
3	S3	4	THOTO +B
5	SNS LED	6	SNS LED GND
7	REEL PULSE	8	SAFETY TAB
9	LOAD ⊖	10	LOAD ⊕
11	DEW	12	M2
13	M3	14	H3⁻
15	H3+	16	H1⁻
17	VH+	18	H1+
19	M1	20	H2⁻
21	H2+	22	VH⁻
23	F·G1	24	F·G·GND

P1514

1	FG GND
2	FG

P1515

1	LOAD ⊕
2	LOAD ⊖

POWER SUPPLY CIRCUIT BOARD	
Transistor	
Q1001	C-3
Q1002	B-3
Q1003	C-3
Q1004	C-3
Q1005	C-4
Q1501	A-1
Test Point	
TP1001	B-3
TP1002	B-3
Adjustment	
VR1001	C-4

ADDRESS INFORMATION

SYSTEM CONTROL CIRCUIT BOARD	
Transistor	
Q1502	C-10
Q1503	D-11
Q6001	C-9
Q6002	F-8
Q6003	E-8
Q6004	E-8
Q6005	E-7
Q6006	B-7
Transistor & Resistor	
QR6001	D-8
QR6002	E-7
QR6003	B-7
QR6004	E-8
QR6005	E-6
Integrated Circuit	
IC1501	E-12
IC6001	C-8
IC6002	E-8
IC6003	B-6
Test Point	
TP6001	B-8
TP6002	B-8
TP GND	B-7
TP GND	D-8
Adjustment	
C6008	C-8

ADDRESS INFORMATION

AUDIO CIRCUIT BOARD	
Test Point	
TP4001	C-2
TP4002	C-3
TP4003	B-2
TP GND	C-2
Adjustment	
VR4001	C-2
VR4002	B-2

ADDRESS INFORMATION

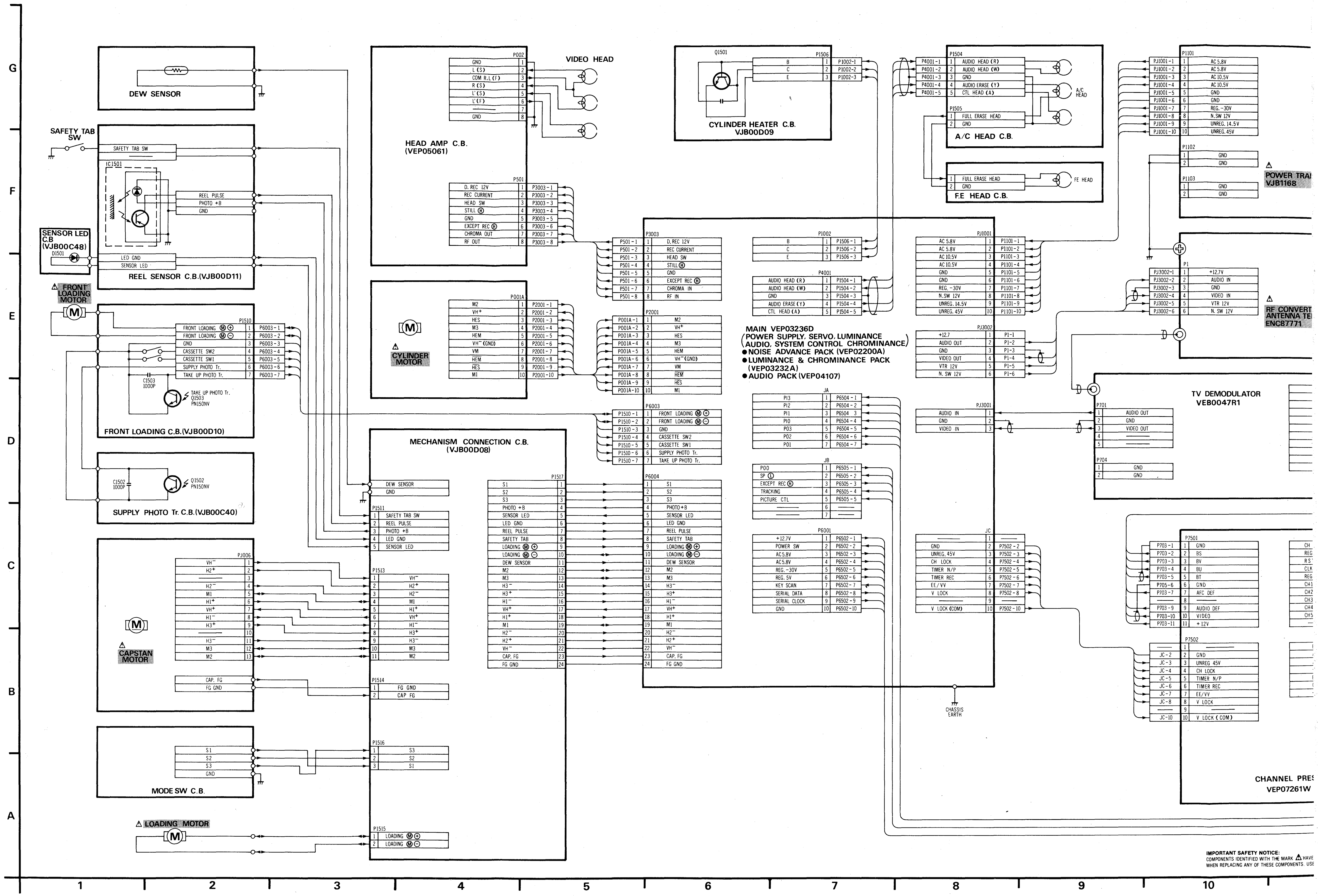
SERVO CIRCUIT BOARD	
Transistor	
Q2001	D-6
Q2002	E-6
Q2004	D-5
Q2005	B-6
Transistor & Resistor	
QR2002	D-6
QR2003	C-6
QR2004	D-6
QR2005	E-5
Integrated Circuit	
IC2001	C-7
IC2002	C-5
IC2003	D-7
IC2004	D-6
IC2005	D-4
IC2006	C-5
Test Point	
TP2001	E-3
TP2002	D-4
TP2003	D-7
TP2004	D-6
Adjustment	
VR2001	D-4
VR2002	D-4

ADDRESS INFORMATION

LUMINANCE & CHROMINANCE CIRCUIT BOARD	
Transistor	
Q3001	E-4
Q3003	D-3
Q3005	D-3
Q3006	D-3
Q3007	E-3
Q3008	E-3
Q3009	E-4
Q8001	D-5
Transistor & Resistor	
QR3001	E-5
Test Point	
TP3001	D-3
TP3002	D-2
Adjustment	
VR3001	E-3
VR3051	E-3

ADDRESS INFORMATION

3-25. INTER CONNECTION SCHEMATIC DIAGRAM


DEW SENSOR
SAFETY TAB SW
IC1501
SENSOR LED C.B (VJB00C48)
D1501
REEL SENSOR C.B.(VJB00D11)
⚠ FRONT LOADING MOTOR
FRONT LOADING C.B.(VJB00D10)
C1503 1000P
TAKE UP PHOTO Tr. Q1503 PN150NV
C1502 1000P
Q1502 PN150NV
SUPPLY PHOTO Tr. C.B.(VJB00C40)
⚠ CAPSTAN MOTOR
MODE SW C.B.
⚠ LOADING MOTOR
HEAD AMP C.B. (VEP05061)
VIDEO HEAD
⚠ CYLINDER MOTOR
MECHANISM CONNECTION C.B. (VJB00D08)
Q1501
CYLINDER HEATER C.B. VJB00D09
A/C HEAD
A/C HEAD C.B.
FE HEAD
F.E HEAD C.B.
MAIN VEP03236D (POWER SUPPLY, SERVO, LUMINANCE AUDIO, SYSTEM CONTROL CHROMINANCE)
●NOISE ADVANCE PACK (VEP02200A)
●LUMINANCE & CHROMINANCE PACK (VEP03232A)
●AUDIO PACK (VEP04107)
CHASSIS EARTH
⚠ POWER TRA VJB1168
⚠ RF CONVERT ANTENNA TE ENC87771
TV DEMODULATOR VEB0047R1
CHANNEL PRE VEP07261W
G
F
E
D
C
B
A
1
2
3
4
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6
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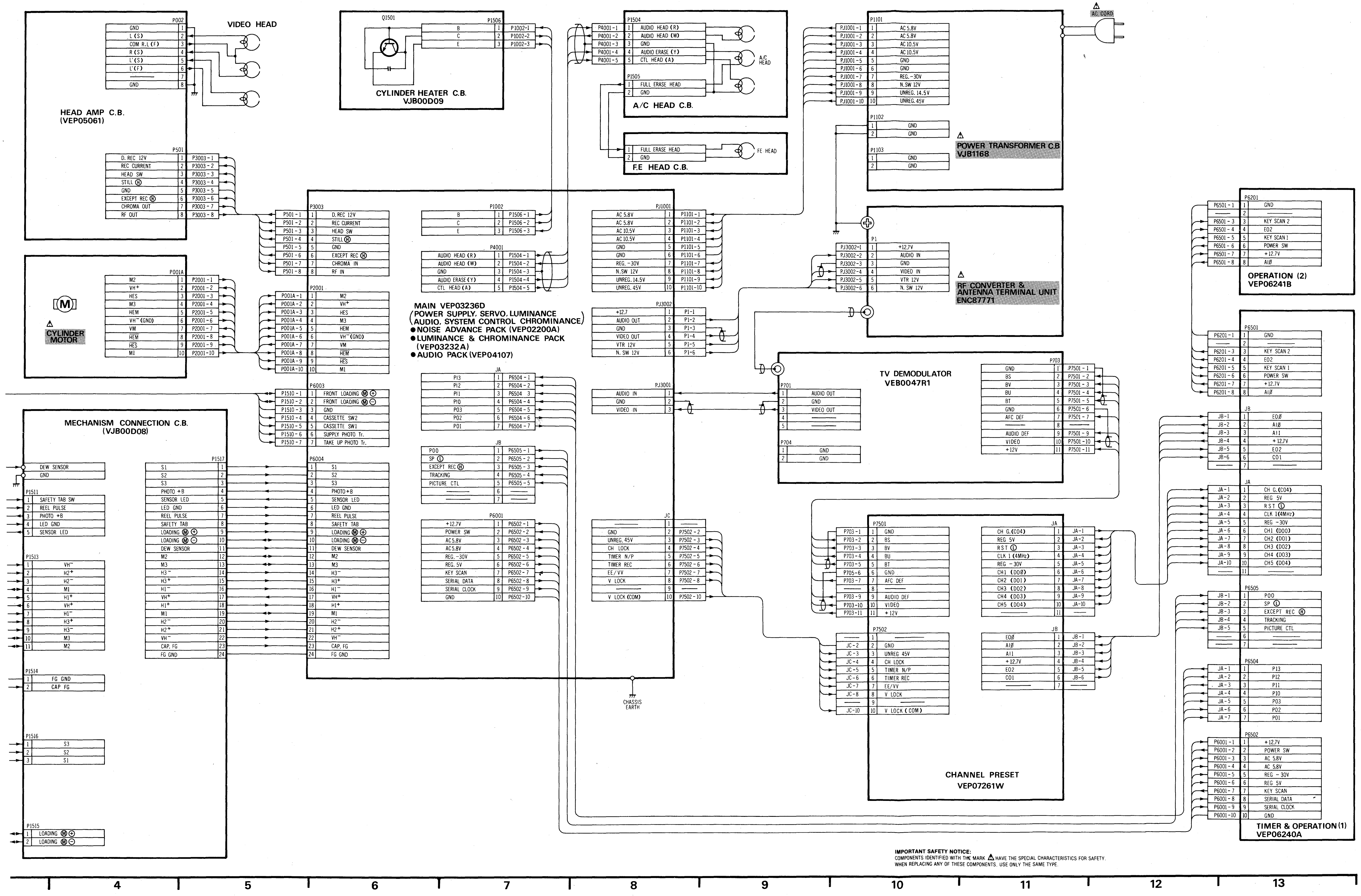
10

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE
WHEN REPLACING ANY OF THESE COMPONENTS. USE

TIC DIAGRAM


VIDEO HEAD
HEAD AMP C.B.
(VEP05061)
CYLINDER HEATER C.B.
VJB00D09
A/C HEAD C.B.
A/C HEAD
F.E HEAD C.B.
FE HEAD
AC CORD
POWER TRANSFORMER C.B
VJB1168
RF CONVERTER &
ANTENNA TERMINAL UNIT
ENC87771
CYLINDER MOTOR
MAIN VEP03236D
(POWER SUPPLY, SERVO, LUMINANCE
AUDIO, SYSTEM CONTROL CHROMINANCE)
●NOISE ADVANCE PACK (VEP02200A)
●LUMINANCE & CHROMINANCE PACK
(VEP03232A)
●AUDIO PACK (VEP04107)
MECHANISM CONNECTION C.B.
(VJB00D08)
CHASSIS EARTH
TV DEMODULATOR
VEB0047R1
CHANNEL PRESET
VEP07261W
OPERATION (2)
VEP06241B
TIMER & OPERATION (1)
VEP06240A
4
5
6
7
8
9
10
11
12
13

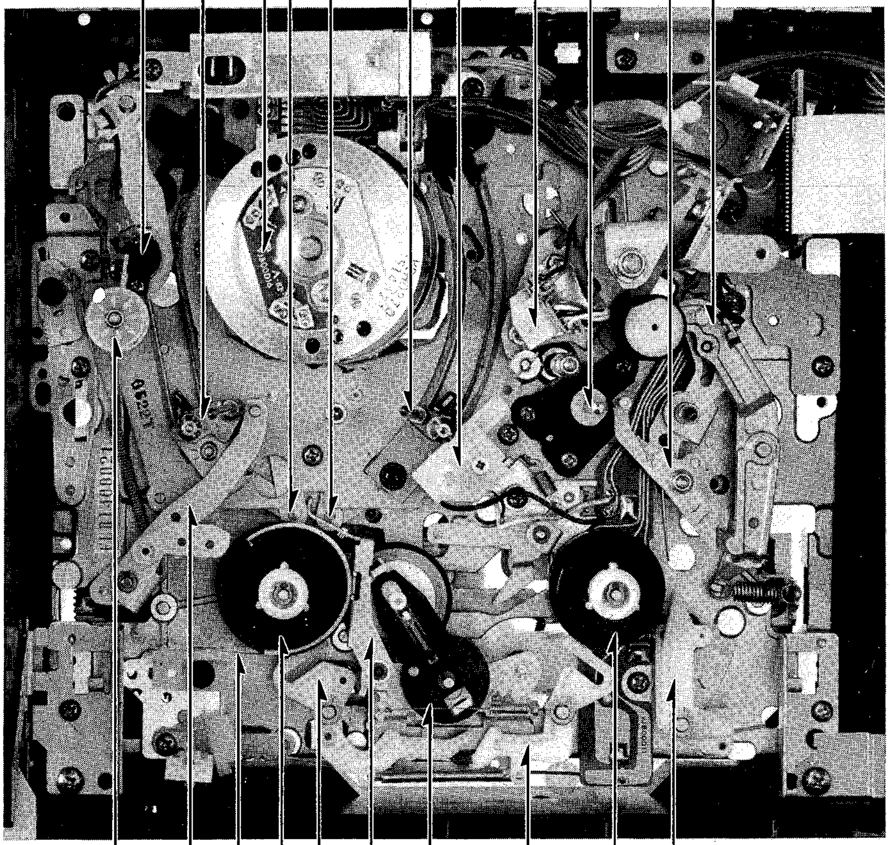
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

Memo

SECTION 4.
EXPLODED VIEWS AND PARTS LIST

4-1. INNER PARTS LOCATION

TOP VIEW



Loading Arm (R) Unit (VXL1152)

Loading Arm (L) Unit (VXL0753)

Upper Cylinder Unit (VEH0287)

Inclind Base (S) Unit (VXA1964)

FE Head (VBS0030)

Inclind Base (T) Unit (VXA1965)

Sensor LED (GL450 or LN59)

A/C Head (VEH0247)

Capstan Rotor Unit (VXP0596)

P5 Arm (VXL1243)

Pressure Roller Lever Unit (VXL1209)

Limiter Roller (VDP0908)

Tension Arm (1) Unit (VXL1157)

Tension Band Unit (VXZ0165)

Supply Reel Table Unit (VXR0118)

S Side Main Brake Unit (VXZ0187)

T Soft Brake (1) Unit (VXZ0191)

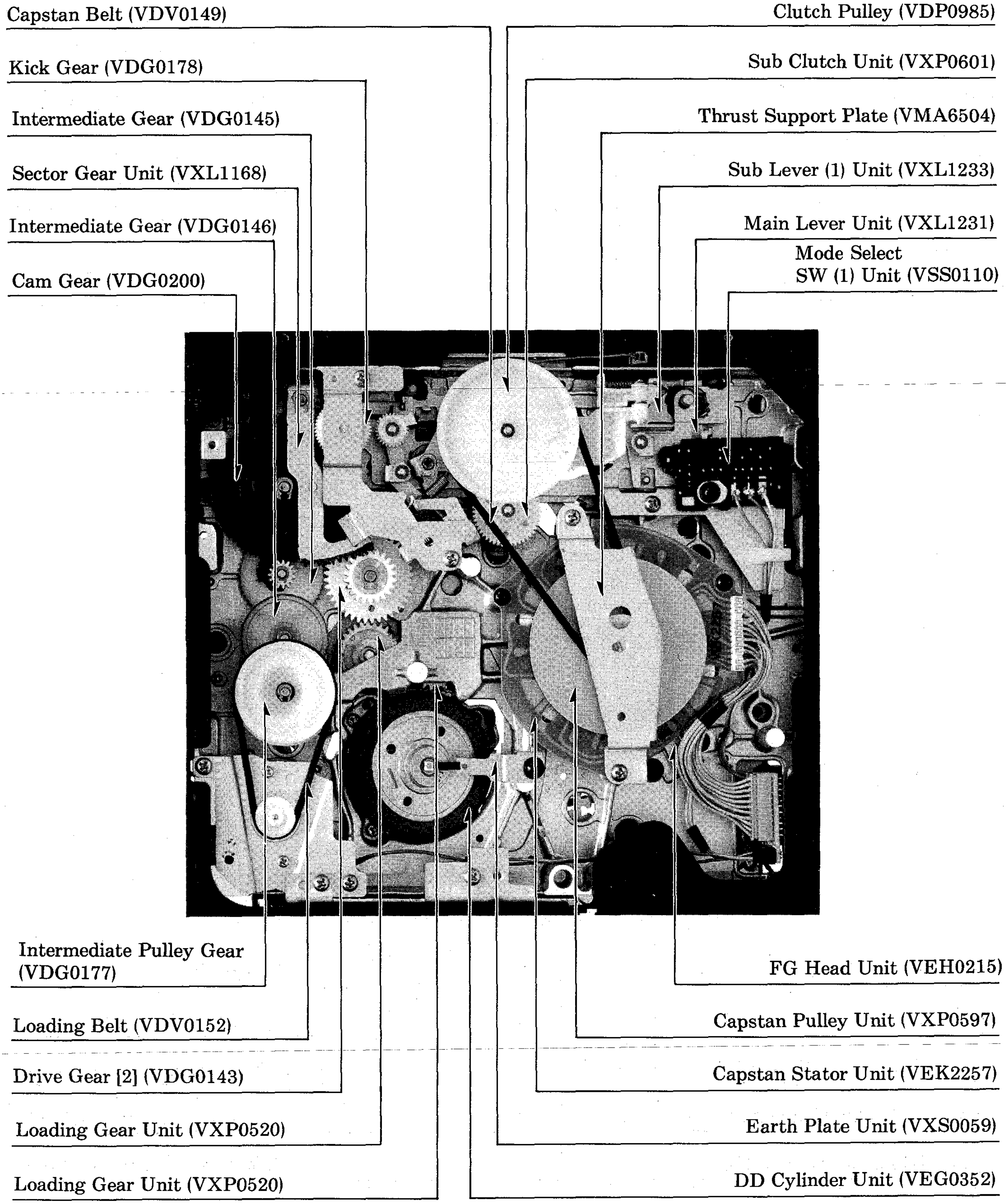
Takeup Reel Table Unit (VXR0119)

T Side Main Brake Unit (VXZ0189)

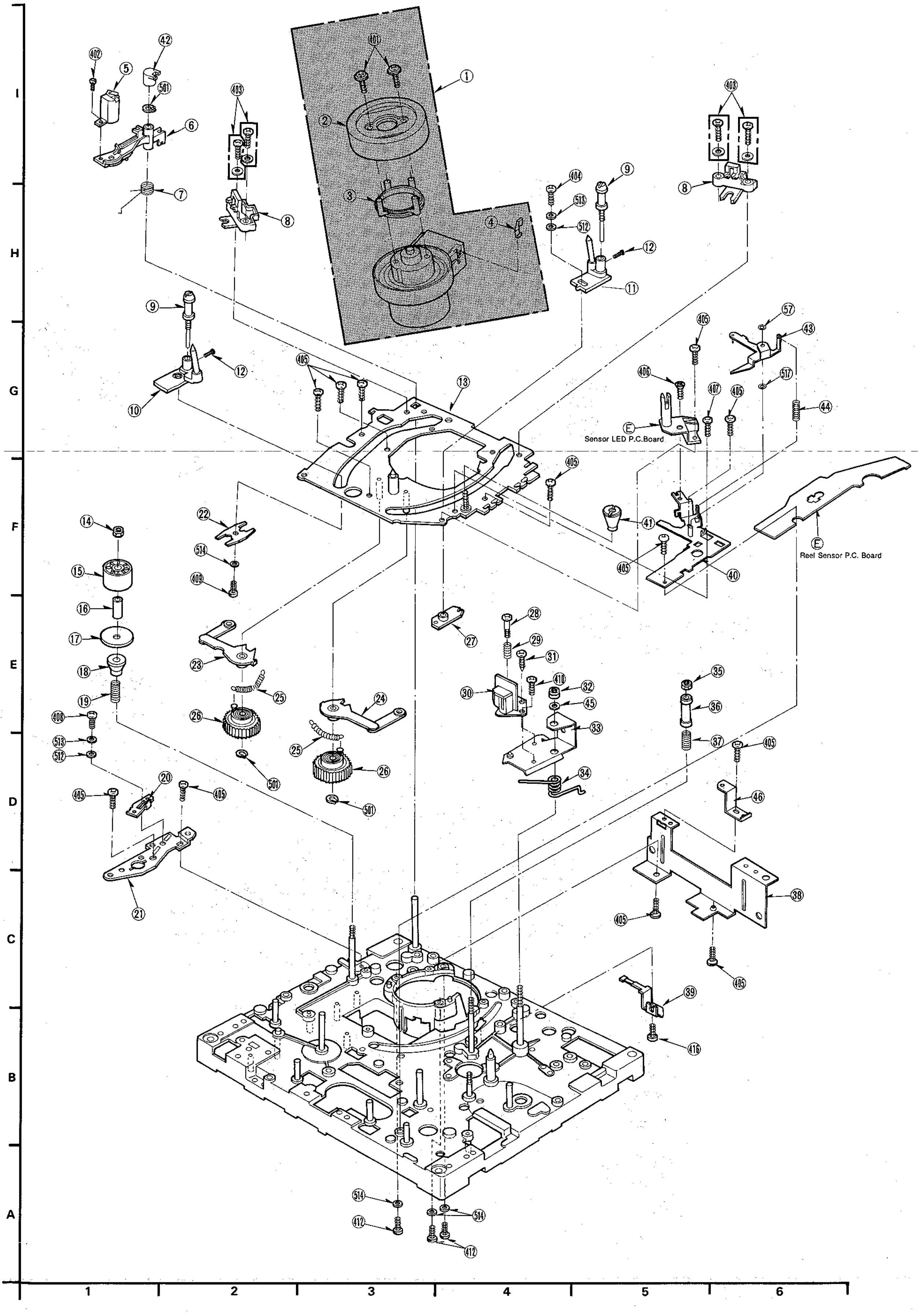
Idler Arm Unit (VXP0521)

T Soft Brake (1) Unit (VXZ0191)

BOTTOM VIEW


Capstan Belt (VDV0149)
Kick Gear (VDG0178)
Intermediate Gear (VDG0145)
Sector Gear Unit (VXL1168)
Intermediate Gear (VDG0146)
Cam Gear (VDG0200)
Clutch Pulley (VDP0985)
Sub Clutch Unit (VXP0601)
Thrust Support Plate (VMA6504)
Sub Lever (1) Unit (VXL1233)
Main Lever Unit (VXL1231)
Mode Select SW (1) Unit (VSS0110)
Intermediate Pulley Gear (VDG0177)
Loading Belt (VDV0152)
Drive Gear [2] (VDG0143)
Loading Gear Unit (VXP0520)
Loading Gear Unit (VXP0520)
FG Head Unit (VEH0215)
Capstan Pulley Unit (VXP0597)
Capstan Stator Unit (VEK2257)
Earth Plate Unit (VXS0059)
DD Cylinder Unit (VEG0352)

4-2. EXPLODED VIEW ❶ TRANSPORT SECTION


I
H
G
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C
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A
1
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3
4
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6
401
1
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3
4
402
42
5
501
6
7
403
8
9
404
513
512
12
11
10
13
405
406
407
57
43
517
44
Sensor LED P.C.Board
E
41
40
Reel Sensor P.C. Board
22
514
409
14
15
16
17
18
19
408
20
21
23
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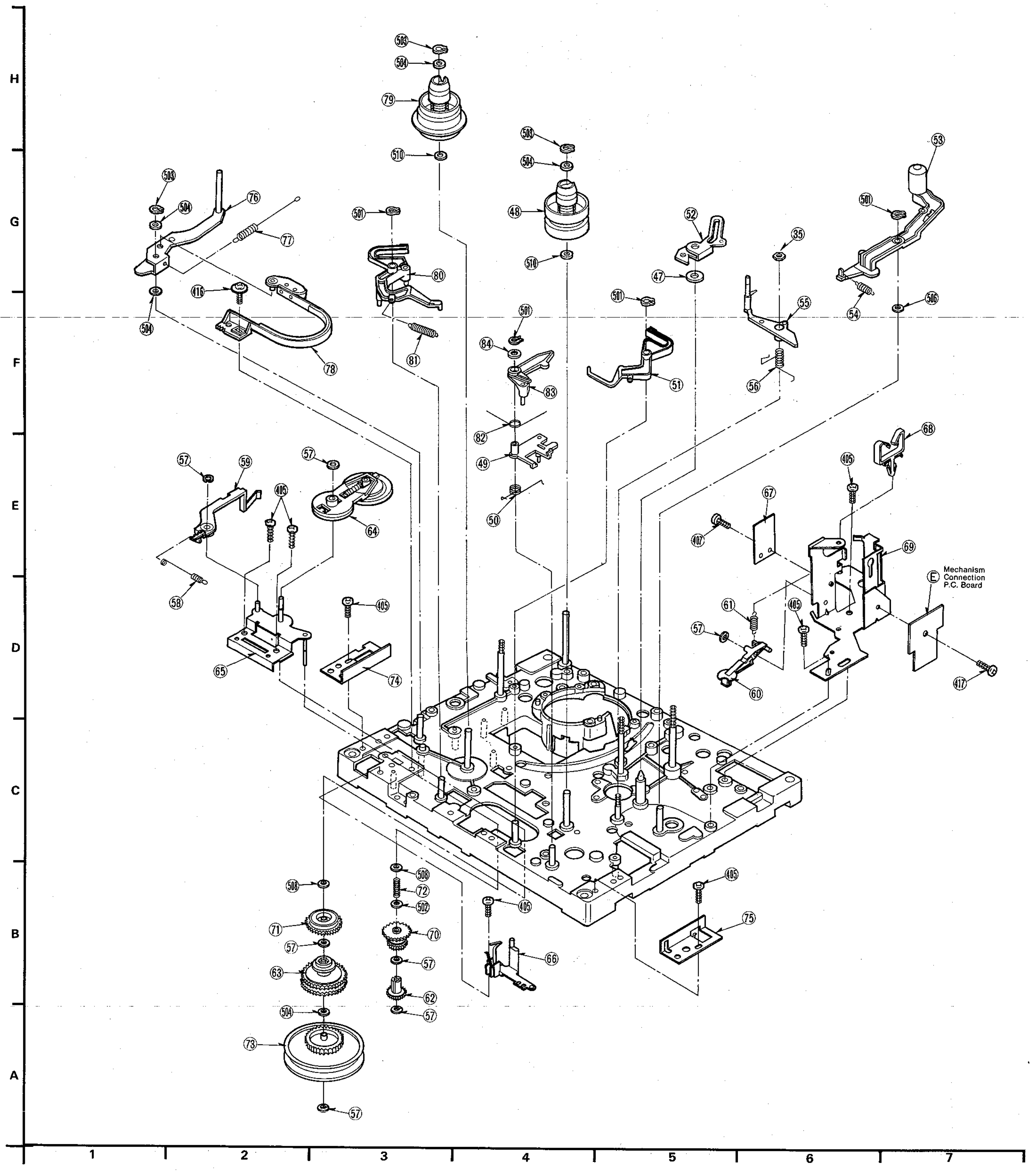
416
412

❷ MOVING MECHANISM SECTION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509
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76
77
501
80
52
35
501
47
416
504
501
84
83
78
81
501
51
55
54
506
56
82
49
50
68
57
59
57
405
64
405
67
407
69
E Mechanism Connection P.C. Board
58
405
61
405
57
65
74
60
417
508
72
502
71
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504
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73
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405
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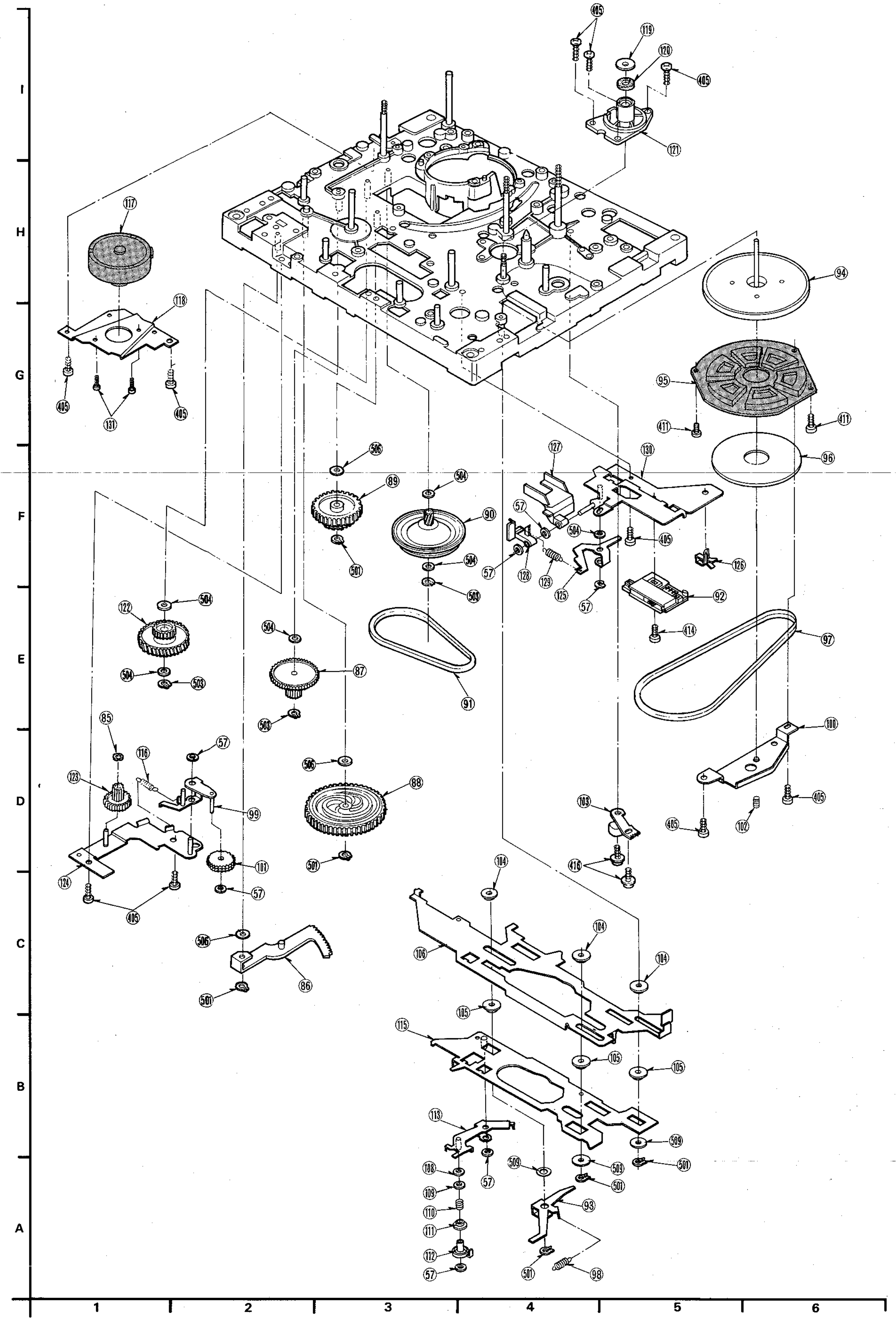
405
75

❸ CHASSIS PARTS SECTION


405
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122
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414
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109
93
110
111
112
501
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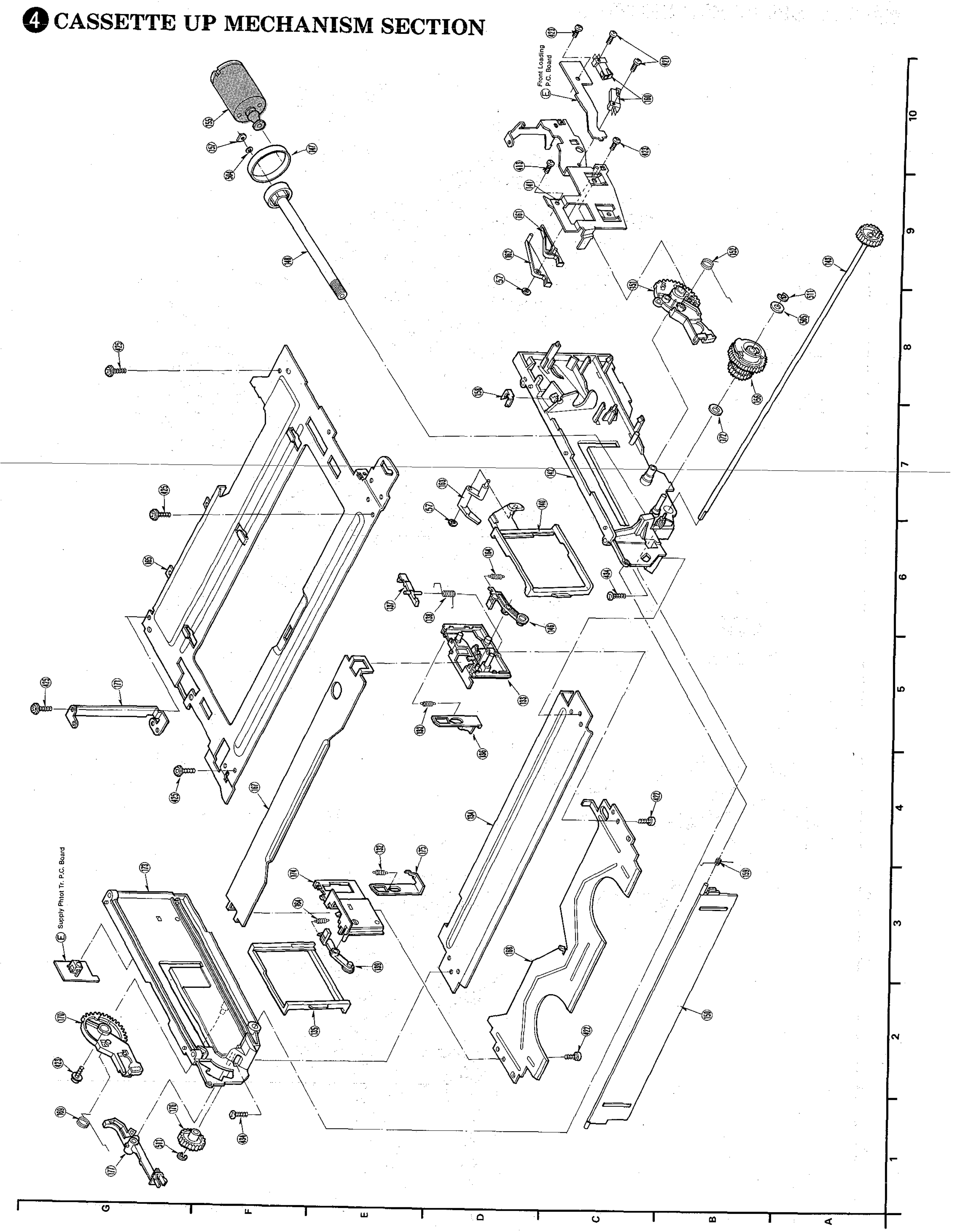
6

❹ CASSETTE UP MECHANISM SECTION


423
421
160
Ⓔ Front Loading P.C. Board
155
157
504
147
148
423
413
141
161
162
57
152
151
143
511
505
156
158
172
142
425
425
165
163
57
140
164
434
137
138
146
133
425
171
132
136
425
167
134
422
159
132
175
174
Ⓔ Supply Phtot Tr. P.C. Board
173
164
139
168
135
170
150
422
423
169
176
511
434
177
1
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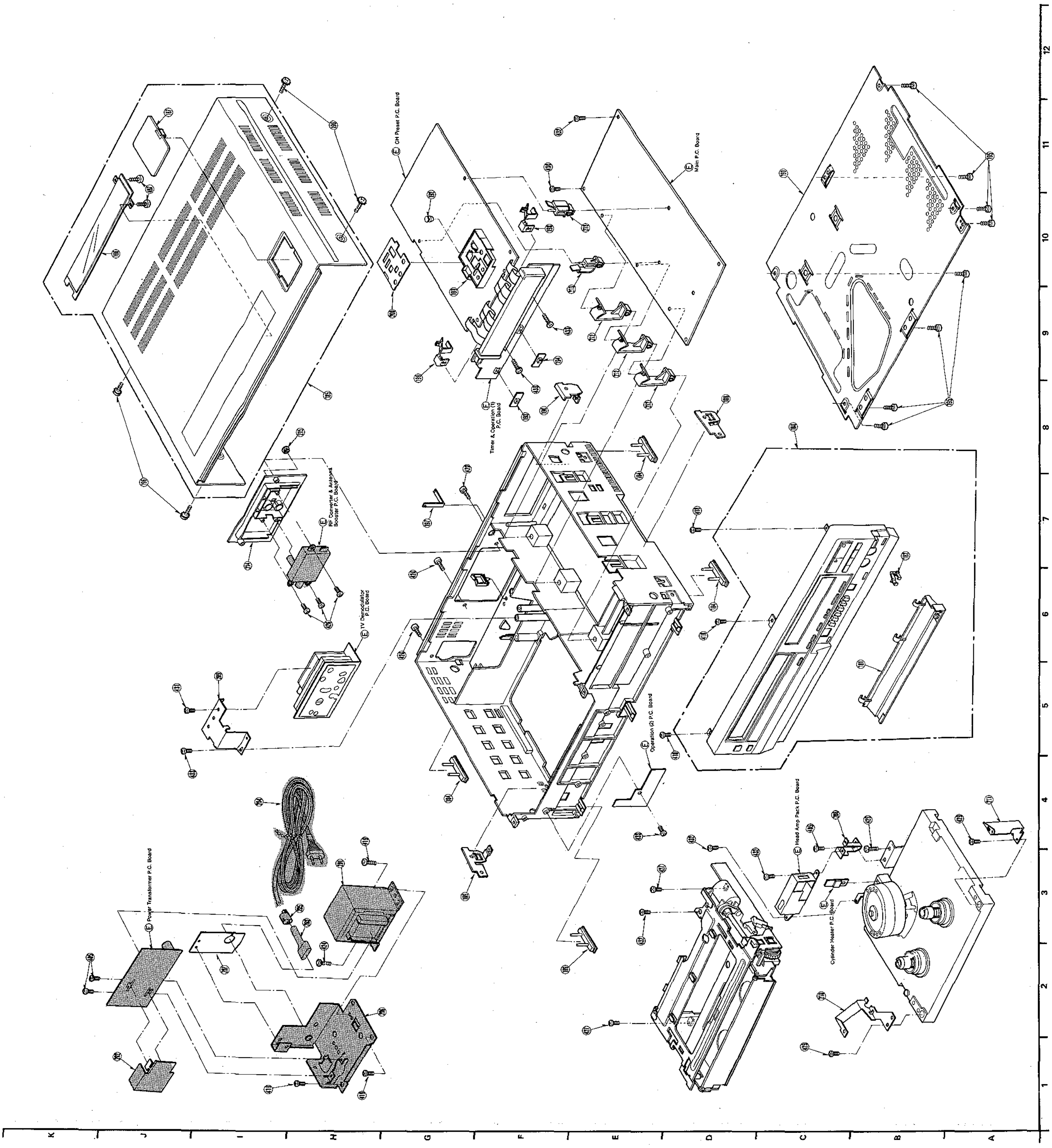
G

❺ CASING PARTS SECTION


CH Preset P.C. Board
Main P.C. Board
Timer & Operation (1) P.C. Board
RF Converter & Antenna Booster P.C. Board
TV Demodulator P.C. Board
Operation (2) P.C. Board
Head Amp Pack P.C. Board
Cylinder Heater P.C. Board
Power Transformer P.C. Board
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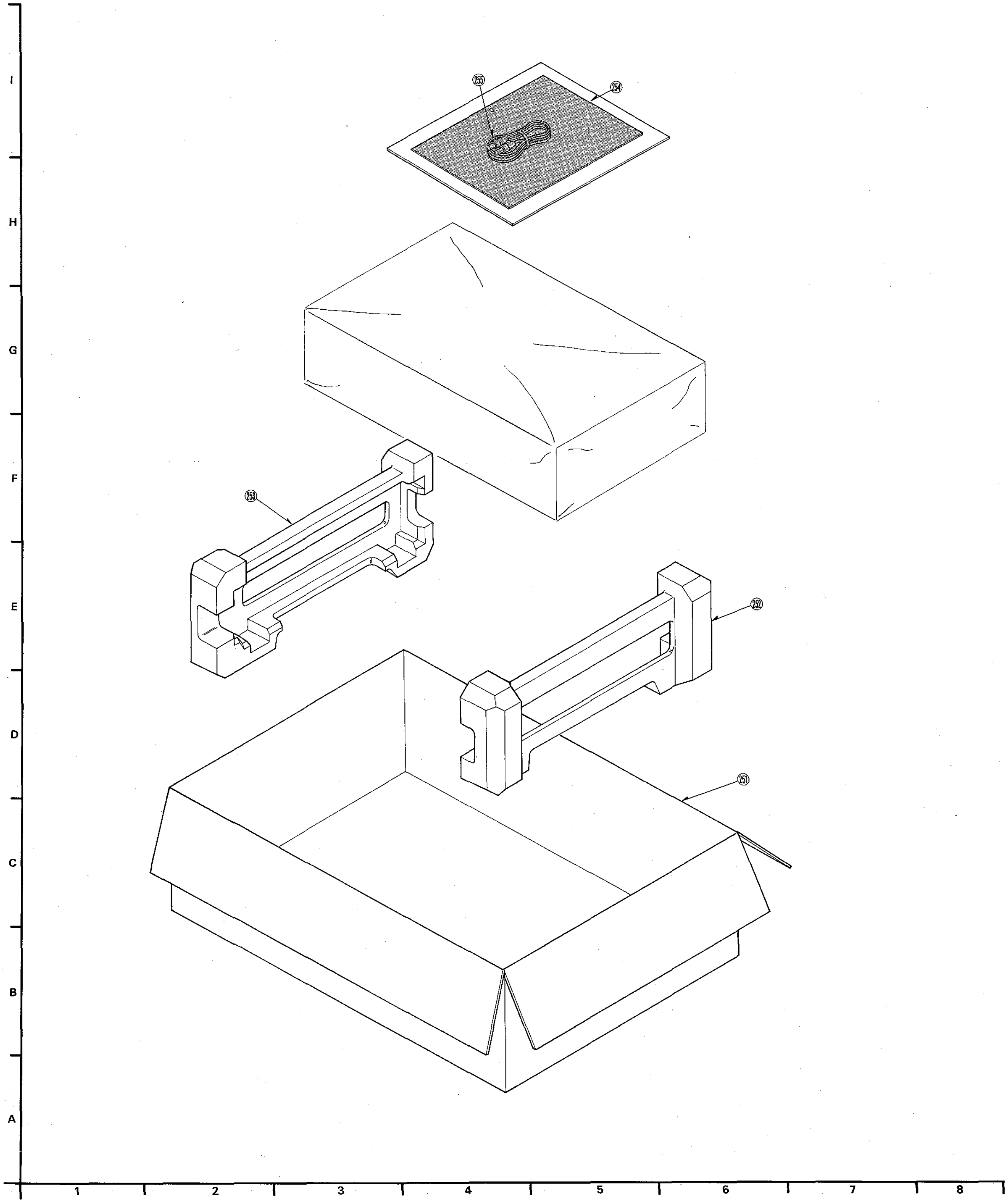
❻ PACKING PARTS SECTION


(255)
(254)
(253)
(252)
(251)
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4-3. MECHANICAL REPLACEMENT PARTS LIST

Notes: 1. ∗ Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
1(1)		VEG0352	DD Cylinder Unit	1	⚠
2(1)		VEH0287	Upper Cylinder Unit	1	
3(1)		VJR0082	RT Terminal	1	
4(1)		VMC0049	Power Tr. Pressure Spring	1	
5(1)		VBS0030	FE Head	1	
6(1)		VML1544	FE Lever	1	
7(1)		VMB1005	FE Lever Spring	1	
8(1)		VMD0570	Post Stopper	2	
9(1)		VXP0302	Roller Post Unit	2	
10(1)		VXA1964	Inclind Base (S) Unit	1	
11(1)		VXA1965	Inclind Base (T) Unit	1	
12(1)		VHD0133	Screw	2	
13(1)		VXA1963	Loading Base (1) Unit	1	
14(1)		VHD0045	Nut	1	
15(1)		VDP0908	Limiter Roller	1	
16(1)		VMX0288	Collar	1	
17(1)		VMX0456	Lower Limiter	1	
18(1)		VMX0663	Limiter Stand	1	
19(1)		VMB0754	P1 Spring	1	
20(1)		VMA6338	Position Adjust Hook	1	
21(1)		VMA6358	Position Plate	1	
22(1)		VMA4436	Shaft Holder Stopper	1	
23(1)		VXL0753	Loading Arm (L) Unit	1	
24(1)		VXL1152	Loading Arm (R) Unit	1	
25(1)		VMB0669	Loading Spring	2	
26(1)		VXP0520	Loading Gear Unit	2	
27(1)		VXA1966	Inclind Adjustment Plate	1	
28(1)		VHD0054	Adjustment Screw (15)	1	
29(1)		VMB1251	Adjustment Spring	1	
30(1)		VEH0247	A/C Head	1	
31(1)		VHD0089B	Azimuth Adjustment Screw	1	
32(1)		VHN0038	Nylon Nut	1	
33(1)		VXA2160	Head Base Unit	1	
34(1)		VMB1189	A/C Height Spring	1	
35(1,2)		VHN0023	M3 Nylon Nut	2	
36(1)		VMX0647	Post Sleeve	1	
37(1)		VMB1235	P4 Spring	1	
38(1)		VMA6507	Chassis Bracket	1	
39(1)		VXS0059	Earth Plate Unit	1	
40(1)		VXA2155	Intermediate Angle (1) Unit	1	
41(1)		VHN0031	X Adjustment Nut	1	
42(1)		VMD0646	Wire Holder	1	
43(1)		VXL1230	Idler Stopper Unit	1	
44(1)		VMB1293	Idler Stopper Spring	1	
45(1)		VMX0750	Spacer	1	
46(1)		VMA6508	Head Amp P.C. Board Angle (L)	1	
47(2)		VMX0749	Washer	1	
48(2)		VXR0119	Takeup Reel Table Unit	1	
49(2)		VML1610	Soft Brake Release Lever	1	
50(2)		VMB1290	Soft Brake Spring (A)	1	
51(2)		VXZ0189	T Side Main Brake Unit	1	
52(2)		VML1617	P5 Pull Out Lever	1	
53(2)		VXL1209	Pressure Roller Lever Unit	1	
54(2)		VMB1001	Pin Pressure Spring	1	
55(2)		VXL1243	P5 Arm	1	
56(2)		VMB1306	P5 Spring	1	
57(2,3,4)		VMX0653	Cut Washer	15	
58(2)		VMB1198	S Soft Brake Spring	1	
59(2)		VXZ0184	S Soft Brake Arm Unit	1	
60(2)		VXZ0185	Capstan Brake (A) Unit	1	
61(2)		VMB1292	Capstan Brake Arm Spring	1	
62(2)		VDG0189	Intermediate Gear (A)	1	
63(2)		VXP0600	Center Clutch Unit	1	
64(2)		VXP0521	Idler Arm Unit	1	
65(2)		VXA2153	FF Lever Base Unit	1	
66(2)		VES0262	Safety Switch Unit	1	
67(2)		VEK2302	Dew Sensor Unit	1	
68(2)		VJF0004	Wire Saddle	1	
69(2)		VXA2157	Dew Angle (1) Unit	1	
70(2)		VDG0188	Intermediate Gear (B)	1	
71(2)		VXP0599	Clutch Gear Unit	1	
72(2)		VMB1288	Intermediate Gear Lift Spring	1	
73(2)		VDP0985	Clutch Pulley	1	
74(2)		VMA6465	Mount Plate (L)	1	
75(2)		VMA6466	Mount Plate (R)	1	
76(2)		VXL1157	Tension Arm (1) Unit	1	
77(2)		VMB1187	Tension Spring	1	
78(2)		VXZ0165	Tension Band Unit	1	
79(2)		VXR0118	Supply Reel Table Unit	1	
80(2)		VXZ0187	S Side Main Brake Unit	1	
81(2)		VMB1289	Main Brake Spring	1	
82(2)		VMB1291	Soft Brake Spring (B)	1	
83(2)		VXZ0191	T Soft Brake (1) Unit	1	
84(2)		VMX0743	Stopper Ring	1	
85(3)		VMX0521	Washer	1	
86(3)		VXL1168	Sector Gear Unit	1	
87(3)		VDG0145	Intermediate Gear	1	
88(3)		VDG0200	Cam Gear	1	
89(3)		VDG0143	Drive Gear (2)	1	
90(3)		VDG0177	Intermediate Pulley Gear	1	
91(3)		VDV0152	Loading Belt	1	
92(3)		VSS0110	Mode Select Switch (1) Unit	1	
93(3)		VML1618	Sub Clutch Release Arm	1	
94(3)		VXP0596	Capstan Rotor Unit	1	
95(3)		VEK2257	Capstan Stator Unit	1	⚠
96(3)		VXP0597	Capstan Pulley Unit	1	
97(3)		VDV0149	Capstan Belt	1	
98(3)		VMB1296	Sub Lever Spring	1	
99(3)		VXL1237	Sub Clutch Arm (1) Unit	1	
100(3)		VMA6504	Thrust Support Plate	1	
101(3)		VXP0601	Sub Clutch Unit	1	
102(3)		VMX0742	Thrust Screw	1	
103(3)		VEH0215	FG Head Unit	1	
104(3)		VMX0308	Slide Washer	1	
105(3)		VMX0122	Slide Washer	1	
106(3)		VXL1231	Main Lever Unit	1	
108(3)		VMX0672	Cut Washer	1	
109(3)		VMX0644	Washer	1	
110(3)		VMB1332	Clutch Spring	1	
111(3)		VDG0179	Clutch Gear (1)	1	
112(3)		VDG0180	Clutch Gear (2)	1	
113(3)		VXL1235	Kick Arm (1) Unit	1	
115(3)		VXL1233	Sub Lever (1) Unit	1	
116(3)		VMB1294	Sub Clutch Arm Spring	1	
117(3)		VEM0211	Loading Motor	1	⚠
118(3)		VMA6460	Loading Motor Bracket	1	
119(3)		VMX0251	Oil Seal	1	
120(3)		VMD0104	Oil Pool	1	
121(3)		VXD0092	Housing Unit	1	
122(3)		VDG0146	Intermediate Gear	1	
123(3)		VDG0178	Kick Gear	1	
124(3)		VXA2162	Sub Clutch Base (1) Unit	1	
125(3)		VML1615	Select Arm (A)	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
126(3)		VJF0013	Miniature Clamper	1	
127(3)		VML1616	Select Arm (B)	1	
128(3)		VML1624	Select Pressure Lever	1	
129(3)		VMB1295	Select Arm Spring	1	
130(3)		VXA2158	Switch Base Unit	1	
131(3)		VHD0146	Screw	2	
132(4)		VMB1256	Safety Lever Spring	2	
133(4)		VXA2199	Holder Guide (R) 1 Unit	1	
134(4)		VMA6511	Cassette Guide	1	
135(4)		VMD0634	Slider (L)	1	
136(4)		VMM0139	Safety Lever (R)	1	
137(4)		VML1585	Release Lever	1	
138(4)		VMB1259	Release Lever Spring	1	
139(4)		VXL1246	Pressing Lever (L) Unit	1	
140(4)		VXA2169	Slider (R) 1 Unit	1	
141(4)		VXA2174	Switch Bracket (1) Unit	1	
142(4)		VXA2172	Side Plate (R) 1 Unit	1	
143(4)		VXP0591	Main Shaft Unit	1	
146(4)		VXL1247	Pressing Lever (R) Unit	1	
147(4)		VDV0153	Slot-In Belt	1	
148(4)		VXP0606	Worm Shaft Unit	1	
150(4)		VKF0405	Blinder Panel	1	(Silver)
150(4)		VKF0487	Blinder Panel	1	(Black)
151(4)		VML1619	Wiper Arm (R)	1	
152(4)		VMB1300	Wiper Spring (R)	1	
155(4)		VEM0218	Front Loading Motor	1	⚠
156(4)		VXP0604	Worm Wheel Unit	1	
157(4)		VDB0739	Worm Shaft Angle	1	
158(4)		VMD0648	Worm Stopper	1	
159(4)		VMB1258	Blinder Spring	1	
160(4)		VSM0049	Skelton Switch	1	
161(4)		VML1622	Switch Lever A	1	
162(4)		VML1623	Switch Lever B	1	
163(4)		VXL1238	Cassette Openner Unit	1	
164(4)		VMB1256	Pressing Lever Spring	2	
165(4)		VMA6512	Top Plate	1	
167(4)		VXA2181	Remains Display Panel Unit	1	
168(4)		VMA6513	Cassette Holder	1	
169(4)		VMB1301	Wiper Spring (L)	1	
170(4)		VML1620	Wiper Arm (L)	1	
171(4)		VSC1260	Shield Bracket (L)	1	
172(4)		XWGV56D10G	Washer	1	
173(4)		VMD0662	Side Plate (L)	1	
174(4)		VXA2200	Holder Guide (L) 1 Unit	1	
175(4)		VMM0140	Safety Lever (L)	1	
176(4)		VDG0172	Shaft Gear	1	
177(4)		VML1625	Front Opener Lever	1	
180(5)		VYP1216	Front Panel Unit	1	(Silver)
180(5)		VYP1217	Front Panel Unit	1	(Black)
181(5)		VYF0575	Timer Door Unit	1	(Silver)
181(5)		VYF0576	Timer Door Unit	1	(Black)
182(5)		VGQ0550	Latch	1	
184(5)		VKA0026	Rubber Foot	4	
185(5)		VYP1218	Top Panel Unit	1	(Silver)
185(5)		VYP1219	Top Panel Unit	1	(Black)
186(5)		VKW0468	Smoke Board	1	(Silver)
186(5)		VKW0476	Smoke Board	1	(Black)
187(5)		VYF0293	Preset Cover Unit	1	(Silver)
187(5)		VYF0531	Preset Cover Unit	1	(Black)
188(5)		VMP0463	Top Case Hold Angle (R)	1	
189(5)		VMP0464	Top Case Hold Angle (L)	1	
190(5)		VMP0499	Top Case Hold Angle	1	
191(5)		VKU0213	Bottom Plate	1	
192(5)		VMG0326	Rubber Cap	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
193(5)		VGU1715	Slide Knob (A)	1	
194(5)		VGU1713	Slide Knob (B)	1	
195(5)		VHD0059	Screw	8	
196(5)		VHD0166	Screw	4	(Silver)
196(5)		VHD0165	Screw	4	(Black)
197(5)		VJF0139	AC Cord Band	1	
198(5)		VKC0154	Hinge (A)	2	
199(5)		VGQ0415	CH Preset Case	1	
200(5)		VGH0401	CH Preset Name Plate	1	
201(5)		VTP0131	Power Transformer	1	⚠
202(5)		VMZ0606	Power Transformer Barrier	1	⚠
203(5)		VMX0237	AC Cord Cover	1	⚠
204(5)		VJA0111	AC Cord	1	⚠
205(5)		VJF0107	AC Cord Bushing	1	⚠
206(5)		VMP0495	Power Transformer Angle	1	⚠
207(5)		VGH0368	Power Name Plate	1	
208(5)		VMA6509	Head Amp Angle (R)	1	
209(5)		VMP0429	Tuner Holder	1	
210(5)		VSC1175	Shield Angle (L)	1	
211(5)		VSC1174	Shield Angle (R)	1	
212(5)		VKC0129	Hinge (B)	2	
213(5)		VJF0236	P.C. Board Spacer	2	
214(5)		VJH0321	RF & Antenna Board	1	
215(5)		VMG0272	RF Converter Bushing	1	
251(6)		VPG1986	Packing Case	1	(Silver)
251(6)		VPG1987	Packing Case	1	(Black)
252(6)		VPN1141	Cushion (R)	1	
253(6)		VPN1142	Cushion (L)	1	
254(6)		VQF1401	Fan Bag Kit	1	⚠
255(6)		VJA0217	DIN RF Cable	1	
			Screws		
401(1)		XYNV0027		2	
402(1)		XTN26+6G		1	
403(1)		VHD0147		4	
404(1)		XSN3+8BVS		1	
405(1,2,3,5)		XTV3+8F		32	
406(1)		XSS26+6		1	
407(2,5)		XTV3+6F		4	
408(1)		XSN3+6BVS		1	
409(1)		XSN3+4		1	
410(1)		XSN3D10FZS		1	
411(1,3)		XTV3+8FFZ		2	
412(1)		XSN3+8		3	
413(4)		XTN26+6FFZ		1	
414(3)		XYE3+BF10FZ		1	
416(1,2,3)		VHD0149		4	
417(2)		XYE3+EF6		1	
418(5)		XTW3+10PR		3	
419(5)		XTV4+8J		3	
420(5)		XTV3+10JFZ		3	
421(4)		XYN2+F10		2	
422(4)		XTN26+6JFZ		2	
423(4)		XYC26+BJ10		3	
424(5)		XTV4+8F		1	
425(4)		XTB26+8J		4	
426(5)		XTV3+10G		3	
427(5)		XTV3+10FR		2	
429(5)		XTV4+15A		3	
430(5)		XTV3+10GR		1	
431(5)		XYN3+F5S		1	
432(5)		XTV3+8FR		4	
433(5)		XTV3+8GR		5	
434(4)		XTN26+6FZ		2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Washers & Rings		
501(1,2,3)		XUEV4VW		15	
502(2)		XWGV5D9G		1	
503(2,3)		XUEV3VW		6	
504(2,3,4)		XWGV3D6G		12	
505(4)		XWGV3D8G		1	
506(2,3)		XWGV4D9G		4	
507(1)		XWGV3Y6G		2	
508(2)		XWGV3D54G		2	
509(3)		XWGV4D11G		3	
510(2)		XWGV3D8G		2	
511(4)		XUC25FP		2	
512(1)		XWGV3FZ		2	
513(1)		XWA4BFZ		2	
514(1)		XWA3B		4	

4-4. ELECTRICAL REPLACEMENT PARTS LIST

Notes: 1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS (Ω), 1/4W ± 5% carbon. K=1,000Ω, M=1,000KΩ. All capacitors are in MICROFARADS (μF), ±10% P=μμF.

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
	VEP03236D	Main(Power Supply,Servo, Luminance,Chrominance, Audio,System Control) P.C.Board Unit	1	Including the Noise Advance Pack P.C.Board Unit (VEP02200A), Luminance,Chrominance Pack P.C.Board Unit (VEP03232A) & Audio Pack P.C.Board Unit (VEP04107).
	VEP02200A	Noise Advance Pack P.C. Board Unit	1	
	VEP03232A	Luminance & Chrominance Pack P.C.Board Unit	1	
	VEP04107	Audio Pack P.C.Board Unit	1	
	VEP05061	Head Amp Pack P.C.Board Unit	1	
	VEP06241B	Operation (2) P.C. Board Unit	1	
	VEB0047R1	TV Demodulator P.C.Board Unit	1	
	VEP06240A	Timer & Operation (1) P.C.Board Unit	1	
	VEP07261W	CH Preset P.C.Board Unit	1	
	ENC87771	RF Converter & Antenna Booster Unit	1	⚠
	VJB00C40	Supply Photo Tr. P.C.Board	1	
	VJB00C48	LED P.C.Board	1	
	VJB00D08	Mechanism Connection P.C.Board	1	
	VJB00D09	Cylinder Heater P.C.Board	1	
	VJB00D10	Front Loading P.C.Board	1	
	VJB00D11	Reel Sensor P.C.Board	1	
	VJB01168	Power Transformer P.C. Board	1	⚠
T1101	VTP0131	Power Transformer	1	⚠
F1101	XBA2C04TRO	Fuse 250V 400mA	1	⚠
F1102	XBA2C12TRO	Fuse 250V 1.25A	1	⚠
	VGH0401	CH Preset Name Plate	1	
	VGQ0415	CH Preset Case	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
	VEP03236D	Main(Power Supply,Servo, Luminance,Chrominance, Audio,System Control) P.C.Board Unit	1	Including the Noise Advance Pack P.C.Board Unit (VEP02200A), Luminance,Chrominance Pack P.C.Board Unit
	VEP02200A	Noise Advance Pack P.C. Board Unit	1	
		Integrated Circuit		
IC201	BA855A		1	
		Transistor		
Q201	2SB641		1	
		Combination Parts (Transistor & Resistor)		
QR201	DTC144A		1	or UN1213
		Diodes		
D202,203	MA165		2	
		Resistors		
R202	EROS2CKG5602	Metal Oxide 1/2W 56k	1	
R203	EROS2CKG1693	Metal Oxide 1/2W 169k	1	
R204	ERDS2TJ223	22k	1	
R205	ERDS2TJ154	150k	1	
R206	ERDS2TJ823	82k	1	
R207	ERDS2TJ184	180k	1	
R209	EROS2CKG2003	Metal Oxide 1/2W 200k	1	
R210	ERDS2TJ563	56k	1	
R211	ERDS2TJ102	1k	1	
R212	ERDS2TJ563	56k	1	
R213	ERDS2TJ183	18k	1	
R214	ERDS2TJ102	1k	1	
R215	ERDS2TJ103	10k	1	
R216	ERDS2TJ124	120k	1	
R219	ERDS2TJ563	56k	1	
R220	ERDS2TJ223	22k	1	
R221	ERDS2TJ153	15k	1	
R222	ERDS2TJ222	2.2k	1	
		Variable Resistor		
VR2004	EVN61AA00B54	50k	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Capacitors		
C201,202		ECQV1H332JZ	Mylar 50V 3300P	2	
C203-205		ECQV1H124JZ	Mylar 50V 0.12	3	
C207		ECQV1H124JZ	Mylar 50V 0.12	1	
C208		VCYF1C103MR	Semiconductor 16V 0.01	1	
C209		ECQV1H103JZ	Mylar 50V 0.01	1	
C211		ECEA10Z22	Electrolytic 10V 22	1	
C212		VCYF1E123MR	Semiconductor 25V 0.012	1	
C213		VCYF1C103MR	Semiconductor 16V 0.01	1	
C214		ECEA1HK010	Electrolytic 50V 1	1	
C215		ECEA0JK470	Electrolytic 6.3V 47	1	
			Connectors		
		VJR0128	5P	1	
		VJR0130	12P	1	
		VEP03232A	Luminance, Chrominance	1	
			Pack P.C. Board Unit		
			P.C.B. Ass'y		
IC301		VEFY007		1	
IC801		VEFC009		1	
			Integrated Circuit		
IC302		BA7004		1	
			Transistors		
Q301,302		2SC2206		2	
Q304		2SB641		1	
Q801		2SC2206		1	
Q802,803		2SD636		2	
			Combination Parts		
			(Transistor & Resistor)		
QR301		DTC144A		1	or UN1213
QR801		DTC144A		1	or UN1213
			Diodes		
D301-303		MA165		3	
D801		MA165		1	
			Resistors		
R301,302		ERDS2TJ561	560	2	
R303		ERDS2TJ331	330	1	
R304		ERDS2TJ681	680	1	
R305		ERDS2TJ102	1k	1	
R306		ERDS2TJ151	150	1	
R307		ERDS2TJ222	2.2k	1	
R308		ERDS2TJ562	5.6k	1	
R309		ERDS2TJ474	470k	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R310		ERDS2TJ394	390k	1	
R312		ERDS2TJ103	10k	1	
R313		ERDS2TJ393	39k	1	
R314		ERDS2TJ152	1.5k	1	
R315		ERDS2TJ272	2.7k	1	
R316		ERDS2TJ472	4.7k	1	
R317		ERDS2TJ682	6.8k	1	
R318		ERDS2TJ152	1.5k	1	
R319		ERDS2TJ561	560	1	
R320		ERDS2TJ183	18k	1	
R321		ERDS2TJ124	120k	1	
				1	
R801,802		ERDS2TJ221	220	2	
R803		ERDS2TJ333	33k	1	
R804		ERDS2TJ393	39k	1	
R805		ERDS2TJ122	1.2k	1	
R806		ERDS2TJ271	270	1	
R807		ERDS2TJ102	1k	1	
R808		ERDS2TJ105	1M	1	
R809		ERDS2TJ822	8.2k	1	
R810		ERDS2TJ562	5.6k	1	
R811		ERDS2TJ102	1k	1	
R812		ERDS2TJ471	470	1	
R813		ERDS2TJ104	100k	1	
R814,815		ERDS2TJ562	5.6k	2	
R816		ERDS2TJ821	820	1	
R817		ERDS2TJ472	4.7k	1	
R818		ERDS2TJ273	27k	1	
R819		ERDS2TJ470	47	1	
R820,821		ERDS2TJ103	10k	2	
R822		ERDS2TJ182	1.8k	1	
R824		ERDS2TJ272	2.7k	1	
R825		ERDS2TJ562	5.6k	1	
			Capacitors		
C301		ECCF1H040CC	Ceramic 50V 4P	1	
C302		ECEA0JU331	Electrolytic 6.3V 330	1	
C303		ECEA0JK470	Electrolytic 6.3V 47	1	
C304		ECKF1H103ZF	Ceramic 50V 0.01	1	
C305		VCKF1H181JA	Semiconductor 50V 180P	1	
C306,307		ECEA1CK100	Electrolytic 16V 10	2	
C308		ECEA1AK470	Electrolytic 10V 47	1	
C309		ECCF1H330JC	Ceramic 50V 33P	1	
C310		ECKF1H221KB	Ceramic 50V 220P	1	
C311		ECEA1CK100	Electrolytic 16V 10	1	
C312		ECEA1EK3R3	Electrolytic 25V 3.3	1	
C313		ECEA1HK2R2	Electrolytic 50V 2.2	1	
C314		ECEA1EK4R7	Electrolytic 25V 4.7	1	
C315		ECEA1HK2R2	Electrolytic 50V 2.2	1	
C316-319		ECEA1CK100	Electrolytic 16V 10	4	
C320,321		VCYF1E332MR	Semiconductor 25V 3300P	2	
C322		ECQV1H104JZ	Mylar 50V 0.1	1	
C801		ECKF1H103ZF	Ceramic 50V 0.01	1	
C802		ECQB1H223JH	Mylar 50V 0.022	1	
C803		ECKF1H103ZF	Ceramic 50V 0.01	1	
C804		ECCF1H270JC	Ceramic 50V 27P	1	
C805		ECKF1H471KB	Ceramic 50V 470P	1	
C806		ECEA1CK100	Electrolytic 16V 10	1	
C807		ECEA1HK2R2	Electrolytic 50V 2.2	1	
C808		ECEA10Z100	Electrolytic 10V 100	1	
C809		ECEA1AK470	Electrolytic 10V 47	1	
C810		ECCF1H050CC	Ceramic 50V 5P	1	
C811		ECKF1H102KB	Ceramic 50V 1000P	1	
C812		ECEA1AK470	Electrolytic 10V 47	1	
C813		ECQV1H154JZ	Mylar 50V 0.15	1	
C814		ECKF1H103ZF	Ceramic 50V 0.01	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C815		ECKF1H471KB	Ceramic 50V 470P	1	
C817		ECKF1H103ZF	Ceramic 50V 0.01	1	
C818		ECQV1H154JZ	Mylar 50V 0.15	1	
C819		ECKF1H821KB	Ceramic 50V 820P	1	
C820,821		ECQV1H104JZ	Mylar 50V 0.1	2	
			Coils		
L301,302		VLQEL05F150K	15uH	2	
L303		VLQEL05F101K	100uH	1	
L304		VLQEL05F6R8K	6.8uH	1	
L305		VLQEL05F101K	100uH	1	
L306		VLQEL05F151K	150uH	1	
L307-309		VLQEL05F101K	100uH	3	
L310		VLQEL05F010K	1uH	1	
L801		VLQEL05F150K	15uH	1	
L802		VLQEL05F470K	47uH	1	
L803		VLQEL05F270K	27uH	1	
L804		VLQEL05F151K	150uH	1	
L805		VLQEL05F101K	100uH	1	
L806		VLQEL05F470K	47uH	1	
L807,808		VLQEL05F681K	680uH	2	
L809		VLQEL05F331K	330uH	1	
			Combination Circuit		
			(Capacitor & Resistor)		
CR801		EXED820K332C	82P 3.3k	1	
			Delay Lines		
DL301		EFDVN645A43D		1	
DL801		EFDHR124A13A		1	
			Filters		
FL301		ELB5G043		1	
FL302		VLF0333		1	
FL801		VLF0299		1	
			Crystal Oscillators		
X301		VSX0099		1	
X801		VSX0129		1	
			Connectors		
		VJR0128	5P	3	
		VJR0130	12P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP04107	Audio Pack P.C. Board	1	
			Unit		
			Integrated Circuits		
IC401		uPC1514CA		1	
IC402		uPC1519HA		1	or TA7361P
			Transistors		
Q401		2SD602A		1	(R,T,W)
Q404		2SD1328		1	(Q,R,T,W)
			Resistors		
R401		ERJ6GCYJ153	Chip 15k	1	
R402		ERJ6GCYJ392	Chip 3.9k	1	
R403		ERJ6GCYJ182	Chip 1.8k	1	
R404		ERJ6GCYJ560	Chip 56	1	
R405		ERJ6GCYJ105	Chip 1M	1	
R406,407		ERJ6GCYJ681	Chip 680	2	
R408		ERJ6GCYJ124	Chip 120k	1	
R410		ERJ6GCYJ392	Chip 3.9k	1	
R411		ERJ6GCYJ331	Chip 330	1	
R413		ERJ6GCYJ332	Chip 3.3k	1	
R415		ERJ6GCYJ563	Chip 56k	1	
R418		ERJ6GCYJ102	Chip 1k	1	
R419		ERJ6GCYJ392	Chip 3.9k	1	
R420		ERJ6GCYJ561	Chip 560	1	
R422		ERJ6GCYJ102	Chip 1k	1	
R425		ERJ6GCYJ332	Chip 3.3k	1	
R426		ERJ6GCYJ102	Chip 1k	1	
			Capacitors		
C401		ECEA1HK010	Electrolytic 50V 1	1	
C402		ECUX1H102KBN	Chip 50V 1000P	1	
C403		ECEA16Z10	Electrolytic 16V 10	1	
C404		ECQP1222JZ	Mylar 100V 2200P	1	
C405		ECEA1AK470	Electrolytic 10V 47	1	
C406		ECEA1CK470	Electrolytic 16V 47	1	
C407		ECUX1H102KBN	Chip 50V 1000P	1	
C408		ECEA16Z10	Electrolytic 16V 10	1	
C409		ECEA0JK101	Electrolytic 6.3V 100	1	
C410		ECQB1H683JH	Mylar 50V 0.068	1	
C411		ECEA1CK100	Electrolytic 16V 10	1	
C412		ECEA1AK330	Electrolytic 10V 33	1	
C414		ECEA1HK010	Electrolytic 50V 1	1	
C416		ECQB1H223JH	Mylar 50V 0.022	1	
C417		ECQB1H333JH	Mylar 50V 0.033	1	
C418		ECEA16Z10	Electrolytic 16V 10	1	
C419		ECEA1AK330	Electrolytic 10V 33	1	
C420		ECEA1CK470	Electrolytic 16V 47	1	
C421		ECCD2H121K	Ceramic 500V 120P	1	
C422		ECEA1CK100	Electrolytic 16V 10	1	
C423		ECQB1H273JH	Mylar 50V 0.027	1	
			Coils		
L401		VLQEL05F471K	470uH	1	
L402		VLQEL07F822J	8.2mH	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Combination Parts		
			(Capacitor & Resistor)		
CR401		EXED103Z153C	0.01 15k	1	
CR402		EXED102K473C	1000P 47k	1	
			Filter		
FL401		VLF0332		1	
			Transformer		
T401		EIQ7QF001B		1	
			Connectors		
PK401		VJR0131	13P	1	
PK402		VJR0128	5P	1	
			(Power Supply Section)		
			Transistors		
Q1001		2SD1275		1	
Q1002		2SD636		1	
Q1003,Q1004		2SC1384		2	(R)
Q1005		2SD636		1	
			Diodes		
D1001-1006		11E1		6	
D1007		MA4039	Zener	1	
			Resistors		
R1001		ERDS2TJ272	2.7k	1	
R1002		ERDS2TJ392	3.9k	1	
R1003		ERDS2TJ103	10k	1	
R1004		EROS2CKG4021	Metal Oxide 1/2W 4020	1	
R1005		EROS2CKG3301	Metal Oxide 1/2W 3300	1	
R1006,1007		ERDS2TJ562	5.6k	2	
R1008		ERDS2TJ471	470	1	
R1009		ERDS2TJ123	12k	1	
			Variable Resistor		
VR1001		EVN38CA00B53	5k	1	
			Capacitors		
C1001		ECEA1CU332	Electrolytic 16V 3300	1	
C1002		ECEA1VU101	Electrolytic 35V 100	1	
C1003		ECKF1H103ZF	Ceramic 50V 0.01	1	
C1004		ECEA0JK470	Electrolytic 6.3V 47	1	
C1005		ECKF1H102KB	Ceramic 50V 1000P	1	
			Connector		
P1002		VJP1230	3P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			(Servo Section)		
			Integrated Circuits		
IC2001		AN6359N		1	
IC2002		AN3821K		1	
IC2003		MN6168VIF		1	
IC2004		AN6562		1	
IC2005		AN6356N		1	
IC2006		AN6387		1	
			Transistors		
Q2001,2002		2SD636		2	
Q2004		2SD636		1	
Q2005		2SC1684		1	
			Combination Parts		
			(Transistor & Resistor)		
QR2002,2003		DTC124A		2	or UN1212
QR2004		DTA124A		1	or UN1112
QR2005		DTC144A		1	or UN1213
			Diodes		
D2003		MA154WK		1	
D2004		MA165		1	
D2007		11E1		1	
D2008-2011		MA165		4	
			Resistors		
R2002		ERDS2TJ563	56k	1	
R2003		ERDS2TJ392	3.9k	1	
R2004,2005		ERDS2TJ563	56k	2	
R2006		ERDS2TJ224	220k	1	
R2007,2008		ERDS2TJ154	150k	2	
R2009		ERDS2TJ124	120k	1	
R2010		ERDS2TJ273	27k	1	
R2011		ERDS2TJ152	1.5k	1	
R2012		ERDS2TJ104	100k	1	
R2013		EROS2CKG2201	Metal Oxide 1/2W 2200	1	
R2014		EROS2CKG1002	Metal Oxide 1/2W 10k	1	
R2017		ERDS2TJ102	1k	1	
R2018		ERX12ANJR82	Metal Oxide 1/2W 0.82	1	
R2019		EROS2CKG1203	Metal Oxide 1/2W 120k	1	
R2020		ERDS2TJ102	1k	1	
R2021		ERDS2TJ181	180	1	
R2022-2024		ERDS2TJ224	220k	3	
R2025		ERDS2TJ561	560	1	
R2026		ERDS2TJ154	150k	1	
R2027		ERDS2TJ274	270k	1	
R2029		ERDS2TJ563	56k	1	
R2030		ERDS2TJ822	8.2k	1	
R2031		EROS2CKG2702	Metal Oxide 1/2W 27k	1	
R2032		EROS2CKG1503	Metal Oxide 1/2W 150k	1	
R2033		EROS2CKG2702	Metal Oxide 1/2W 27k	1	
R2035		ERDS2TJ562	5.6k	1	
R2038		ERDS2TJ223	22k	1	
R2040		ERDS2TJ563	56k	1	
R2041		ERDS2TJ273	27k	1	
R2042		ERDS2TJ222	2.2k	1	
R2043		ERDS2TJ223	22k	1	
R2044		ERDS2TJ181	180	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R2045		ERDS2TJ153	15k	1	
R2046		ERDS2TJ104	100k	1	
R2047		ERX12ANJR68	Metal Oxide 1/2W 0.68	1	
R2048		ERQ12HJ6R8P	Fuse Resistor 1/2W 6.8	1	⚠
R2049		ERDS2TJ150	15	1	
R2050		ERDS2TJ124	120k	1	
R2051,2052		ERDS2TJ150	15	2	
R2053		ERDS2TJ684	680k	1	
R2054		ERDS2TJ563	56k	1	
R2055,2056		ERDS2TJ223	22k	2	
R2101		ERDS2TJ223	22k	1	
R2102		EROS2CKG1500	Metal Oxide 1/2W 150	1	
R2103		EROS2CKG1801	Metal Oxide 1/2W 1800	1	
R2104,2105		ERDS2TJ101	100	2	
R2106		ERDS2TJ102	1k	1	
			Variable Resistors		
VR2001		EVN61AA00B54	50k	1	
VR2002		EVN61AA00B15	100k	1	
			Capacitors		
C2001		VCYF1E102MR	Semiconductor 25V 1000P	1	
C2002		VCYF1E562MR	Semiconductor 25V 5600P	1	
C2003		ECQV1H473JZ	Mylar 50V 0.047	1	
C2004		ECEA1HK0R1	Electrolytic 50V 0.1	1	
C2005		ECEA0JK470	Electrolytic 6.3V 47	1	
C2006		ECEA1HKR22	Electrolytic 50V 0.22	1	
C2008		ECQV1H104JZ	Mylar 50V 0.1	1	
C2009		ECEA1HK010	Electrolytic 50V 1	1	
C2010		ECEA10Z47	Electrolytic 10V 47	1	
C2011		ECEA1HK010	Electrolytic 50V 1	1	
C2012		VCYF1C103MR	Semiconductor 16V 0.01	1	
C2013		ECKF1H222KB	Ceramic 50V 2200P	1	
C2014-2016		ECQB1H822ZF	Mylar 50V 8200P	3	
C2017		ECEA0JK470	Electrolytic 6.3V 47	1	
C2018-2020		ECEA1HK4R7	Electrolytic 50V 4.7	3	
C2021		VCYF1E562MR	Semiconductor 25V 5600P	1	
C2022		ECEA0JK470	Electrolytic 6.3V 47	1	
C2023		ECEA1HK0R1	Electrolytic 50V 0.1	1	
C2025		ECEA1HK010	Electrolytic 50V 1	1	
C2026		ECQV1H683JZ	Mylar 50V 0.068	1	
C2027		ECQV1H334JZ	Mylar 50V 0.33	1	
C2028		ECEA1CKN100	Electrolytic 16V 10	1	
C2029		ECEA1CK100	Electrolytic 16V 10	1	
C2030		ECEA0JK470	Electrolytic 6.3V 47	1	
C2031		ECEA10Z47	Electrolytic 10V 47	1	
C2032		VCYF1E182MR	Semiconductor 25V 1800P	1	
C2033		ECEA1CK470	Electrolytic 16V 47	1	
C2034		VCYF1E682MR	Semiconductor 25V 6800P	1	
C2035		ECKF1H472ZF	Ceramic 50V 4700P	1	
C2036		ECEA1EKN2R2	Electrolytic 25V 2.2	1	
C2037		VCYF1E222MR	Semiconductor 25V 2200P	1	
C2038		ECEA1EK3R3	Electrolytic 25V 3.3	1	
C2039		VCYF1E123MR	Semiconductor 25V 0.012	1	
C2040		ECEA1HKR22	Electrolytic 50V 0.22	1	
C2041,2042		ECEA1EKN2R2	Electrolytic 25V 2.2	2	
C2043		ECEA0JK220	Electrolytic 6.3V 22	1	
C2044		ECEA1CU101	Electrolytic 16V 100	1	
C2046		ECEA0JK470	Electrolytic 6.3V 47	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Combination Circuits		
			(Capacitor & Resistor)		
CR2001		EXED223M222C	0.022 2200	1	
CR2002		EXED472M104C	4700P 100k	1	
			Temperature Fuse		
TF2001		EYP2BR163G		1	⚠
			Connector		
P2001		VJP1237	10P	1	
			(Luminance,Chrominance		
			Section)		
			Transistors		
Q3001		2SD636		1	
Q3003		2SC2188		1	
Q3005		2SC2206		1	(B,C)
Q3006		2SB641		1	(R,S)
Q3007-3009		2SB641		3	
Q8001		2SD636		1	
			Combination Parts		
			(Transistor & Resistor)		
QR3001		DTC124A		1	or UN1212
			Diodes		
D3001,3002		MA165		2	
D3051		MA165		1	
			Resistors		
R3001		ERDS2TJ472	4.7k	1	
R3006		ERDS2TJ682	6.8k	1	
R3007		EROS2CKG1201	Metal Oxide 1/2W 1200	1	
R3008		ERDS2TJ561	560	1	
R3009		ERDS2TJ122	1.2k	1	
R3010		EROS2CKG5600	Metal Oxide 1/2W 560	1	
R3011		ERDS2TJ221	220	1	
R3012		EROS2CKG4700	Metal Oxide 1/2W 470	1	
R3013		ERDS2TJ682	6.8k	1	
R3014,3015		ERDS2TJ560	56	2	
R3018		ERDS2TJ103	10k	1	
R3019		ERDS2TJ332	3.3k	1	
R3020		ERDS2TJ562	5.6k	1	
R3024		ERDS2TJ561	560	1	
R3025,3026		ERDS2TJ750	75	2	
R3027		ERDS2TJ101	100	1	
R3028		ERDS2TJ331	330	1	
R3051		ERDS2TJ334	330k	1	
R8001		ERDS2TJ102	1k	1	
R8002		ERDS2TJ221	220	1	
R8003		ERDS2TJ822	8.2k	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Variable Resistors		
VR3001		EVN61AA00B23	2k	1	
VR3051		EVN61AA00B22	200	1	
			Capacitors		
C3003		ECEA1CK470	Electrolytic 16V 47	1	
C3005		ECCF1H820KC	Ceramic 50V 82P	1	
C3007		VCYF1C333MR	Semiconductor 16V 0.033	1	
C3009		ECKF1H103ZF	Ceramic 50V 0.01	1	
C3010		VCYF1C104MR	Semiconductor 16V 0.1	1	
C3011		ECEA0JU471	Electrolytic 6.3V 470	1	
C3012		ECEA1CU470	Electrolytic 16V 47	1	
C3015		ECKF1H103ZF	Ceramic 50V 0.01	1	
C3051		ECKF1H471KB	Ceramic 50V 470P	1	
C3052		ECCF1H120KC	Ceramic 50V 12P	1	
C3053		ECEA1CK100	Electrolytic 16V 10	1	
C3054		ECKF1H103ZF	Ceramic 50V 0.01	1	
C3055		ECKF1H181KB	Ceramic 50V 180P	1	
C3056		ECQV1H104JZ	Mylar 50V 0.1	1	
C8001		ECEA0JK470	Electrolytic 6.3V 47	1	
C8002		ECKF1H103ZF	Ceramic 50V 0.01	1	
			Coils		
L3002		VLQEL05F820K	82uH	1	
L3003		VLQEL05F151K	150uH	1	
L3004		VLQEL05F101K	100uH	1	
			Combination Circuits		
			(Capacitor & Resistor)		
CR3001		EXED472M682C	4700P 6.8k	1	
CR8001		EXED103M821C	0.01 820	1	
			Connector		
P3003		VJP1235	8P	1	
			(Audio Section)		
			Resistors		
R4001		ERDS2TJ100	10	1	
R4002		ERDS2TJ333	33k	1	
R4005		ERDS2TJ183	18k	1	
			Variable Resistors		
VR4001		EVN61AA00B13	1k	1	
VR4002		EVN61AA00B25	200k	1	
			Capacitor		
C4001		ECKF1H103ZF	Ceramic 50V 0.01	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Connector		
P4001		VJP1232	5P	1	
			(System Control Section)		
			Integrated Circuits		
IC6001		MN15342VGP		1	
IC6002		AN6914		1	
IC6003		BA6238		1	
			Transistors		
Q6001-6003		2SD636		3	
Q6004,6005		2SB643		2	
Q6006		2SD636		1	
			Combination Parts		
			(Transistor & Resistor)		
QR6001		DTC114A		1	or UN1211
QR6002		DTA124A		1	or UN1112
QR6003		DTC114A		1	or UN1211
QR6004		DTC124A		1	or UN1212
QR6005		DTC114A		1	or UN1211
			Diodes		
D6001-6007		MA165		7	
D6009-6012		MA165		4	
D6013		11E1		1	
D6015,6016		MA165		2	
			Resistors		
R6001		ERDS2TJ105	1M	1	
R6002		ERDS2TJ474	470k	1	
R6003		ERDS2TJ103	10k	1	
R6004		EROS2CKG2261	Metal Oxide 1/2W 2260	1	
R6005		EROS2CKG1542	Metal Oxide 1/2W 15.4k	1	
R6006		EROS2CKG1212	Metal Oxide 1/2W 12.1k	1	
R6007		ERDS2TJ332	3.3k	1	
R6008		ERDS2TJ562	5.6k	1	
R6009		ERDS2TJ393	39k	1	
R6010		ERDS2TJ222	2.2k	1	
R6011		ERDS2TJ153	15k	1	
R6012		ERDS2TJ473	47k	1	
R6013		ERDS2TJ333	33k	1	
R6014		ERDS2TJ682	6.8k	1	
R6015		ERDS2TJ102	1k	1	
R6016		ERDS2TJ181	180	1	
R6018		ERDS2TJ103	10k	1	
R6019,6020		ERDS2TJ822	8.2k	2	
R6021		ERDS2TJ391	390	1	
R6022-6024		ERDS2TJ562	5.6k	3	
R6025-6028		ERDS2TJ563	56k	4	
R6030,6031		ERDS2TJ153	15k	2	
R6032.6033		ERDS2TJ333	33k	2	
R6034		ERDS2TJ152	1.5k	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6035		ERDS2TJ332	3.3k	1	
R6036		ERDS2TJ562	5.6k	1	
R6037,6038		ERDS2TJ103	10k	2	
R6039-6041		ERDS2TJ222	2.2k	3	
R6042		ERDS2TJ103	10k	1	
R6043		ERDS2TJ332	3.3k	1	
R6044,6045		ERDS2TJ681	680	2	
R6046		ERDS2TJ120	12	1	
R6047		ERDS2TJ103	10k	1	
R6048		ERDS2FCG180P	18	1	⚠
R6049		ERDS2TJ332	3.3k	1	
R6051		ERDS2TJ104	100k	1	
R6052		ERDS2TJ332	3.3k	1	
R6053		ERDS2TJ333	33k	1	
R6054		ERDS2TJ561	560	1	
R6055		ERDS2TJ101	100	1	
R6056		ERDS2TJ103	10k	1	
			Capacitors		
C6001		ECCF1H221KC	Ceramic 50V 220P	1	
C6002		ECEA1HKR22	Electrolytic 50V 0.22	1	
C6003		ECEA1CK100	Electrolytic 16V 10	1	
C6004		ECEA0JK101	Electrolytic 6.3V 100	1	
C6005		ECQV1H184JZ	Mylar 50V 0.18	1	
C6006		ECQB1H682JH	Mylar 50V 6800P	1	
C6007		ECEA1HN010SB	Electrolytic 50V 1	1	
C6008		ECV1ZW20X53T	Trimmer 500V 20P	1	
C6009		ECCF1H050CC	Ceramic 50V 5P	1	
C6010		ECCF1H080CC	Ceramic 50V 8P	1	
C6011		ECEA0JSS472	Electrolytic 6.3V 4700	1	
C6012		ECQV1H104JZ	Mylar 50V 0.1	1	
C6013		ECEA1HKN010	Electrolytic 50V 1	1	
C6014,6015		ECKF1H103ZF	Ceramic 50V 0.01	2	
C6016		ECEA1HU2R2	Electrolytic 50V 2.2	1	
C6018		ECEA1HN2R2S	Electrolytic 50V 2.2	1	
			Combination Circuit		
			(Capacitor & Resistor)		
CR6001		EXED103M152C	0.01 1.5k	1	
			Crystal Oscillator		
X6001		VSX0071		1	
			Connectors		
P6001		VJP1237	10P	1	
P6003		VJP1234	7P	1	
			Miscellaneous		
		VJF0227	Luminance, Chrominance	1	
			Pack Support Angle		
		VEJ0373	Rear Jack Board	1	
		VJF0004	M-Clamp	1	
		VSC1323	Heat Sink	1	(For Q1001)
		XYN3+B8S	Screw	1	(For Q1001)
		VMP0519	TF Angle	1	(For IC2001)
		XYN3+F10S	Screw	1	(For IC2001)

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP05061	Head Amp Pack	1	
			P.C. Board Unit		
			Integrated Circuit		
IC501		AN3310S		1	
			Transistors		
Q501-504		2SD601		4	(Q,R,S,T,X)
Q505		2SC2404		1	(C,D,T,X)
Q506		2SB709		1	(Q,R,S,T,X)
			Resistors		
R501		ERJ6GCYJ122	1.2k	1	
R502		ERJ6GCYJ223	22k	1	
R503-505		ERJ6GCYJ821	820	3	
R506,507		ERJ6GCYJ222	2.2k	2	
R508,509		ERJ6GCYJ100	10	2	
R510		ERJ6GCYJ222	2.2k	1	
R511		ERJ6GCYJ152	1.5k	1	
R513		ERJ6GCYJ102	1k	1	
R514		ERJ6GCYJ122	1.2k	1	
R515		ERJ6GCYJ331	330	1	
R516		ERJ6GCYJ102	1k	1	
R551		ERJ6GCYJ222	2.2k	1	
			Capacitors		
C501		VCYF1C104MR	Semiconductor 16V 0.1	1	
C502		ECUX1H150JCN	Chip 50V 15P	1	
C503		ECUX1H103ZFN	Chip 50V 0.01	1	
C504,505		ECEA1CK100	Electrolytic 16V 10	2	
C506		ECUX1H103ZFN	Chip 50V 0.01	1	
C507,508		ECUX1H150JCN	Chip 50V 15P	2	
C509		ECUX1H103ZFN	Chip 50V 0.01	1	
C510		ECEA1CK100	Electrolytic 16V 10	1	
C513		ECUX1H180JCN	Chip 50V 18P	1	
C514		ECEA0JK470	Electrolytic 6.3V 47	1	
C515		ECKF1H103ZF	Ceramic 50V 0.01	1	
C516		VCYF1C104MR	Semiconductor 16V 0.1	1	
C519		ECUX1H151JCN	Chip 50V 150P	1	
C520		ECEA1HK010	Electrolytic 50V 1	1	
C521		ECUX1H103ZFN	Chip 50V 0.01	1	
C522		VCYF1C104MR	Semiconductor 16V 0.1	1	
C523		ECEA0JK220	Electrolytic 6.3V 22	1	
C524		ECUX1H122KBN	Chip 50V 1200P	1	
C551		ECUX1H150JCN	Chip 50V 15P	1	
C552		ECUX1H681KBN	Chip 50V 680P	1	
			Coils		
L501		VLQEL05F101K	100uH	1	
L504		VLQEL05F180K	18uH	1	
L506-508		VLP0018		3	
L551		VLQEL05F180K	18uH	1	
L552		VLQEL05F101K	100uH	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		Connectors		
P002	VJS1449	8P	1	
P501	VJP1248	8P	1	
		Miscellaneous		
	VSC1288	Shield Case (Top)	1	
	VSC1290	Shield Case (Bottom)	1	
	VSC1289	Shield Case (Main)	1	
	VEP06241B	Operation (2)P.C.	1	
		Board Unit		
		Diodes		
D6532	LN81RCPHL	LED	1	
D6533	MA165		1	
		Resistors		
R6531	ERDS2TJ102	1k	1	
R6533	ERDS2TJ152	1.5k	1	
		Switches		
S6531	EVQQS307K		1	
S6533	EVQQS307K		1	
		Connector		
P6201	VJP1235	8P	1	
		Miscellaneous		
	KL04	Spacer	2	
	VGF0127	Blinder Tube	1	
	VMX0758	P.C. Board Support	1	
	VEB0047R1	TV Demodulator P.C	1	
		Board Unit		
		(VIF/SIF Section)		
		Integrated Circuits		
IC701	BN5115B		1	
IC751	AN5215		1	
		Transistors		
Q702	2SB641		1	(Q,R,S,T) or 2SA564,
				2SA733
Q703	2SD636		1	(S,T) or 2SD637 (S,T)
Q761	2SD636		1	(Q,R,S,T) or 2SC828,
				2SC1684

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		Diodes		
D711,712	MA165		2	
D761	MA27W-A		1	
		Resistors		
R713	ERDS2TJ332	3.3k	1	
R716	ERDS2TJ392	3.9k	1	
R721	ERDS2TJ151	150	1	
R722	ERDS2TJ274	270k	1	
R731	ERDS2TJ271	270	1	
R732	ERDS2TJ391	390	1	
R733	ERDS2TJ102	1k	1	
R734	ERDS2TJ393	39k	1	
R735	ERDS2TJ473	47k	1	
R736	ERDS2TJ272	2.7k	1	
R741	ERDS2TJ470	47	1	
R743	EROS2CKG1001	Metal Oxide 1/2W 1k	1	
R744	ERDS2TJ332	3.3k	1	
R745	EROS2CKG8200	Metal Oxide 1/2W 820	1	
R746	ERDS2TJ680	68	1	
R747	ERDS2TJ151	150	1	
R749	ERDS2TJ470	47	1	
R751	ERDS2TJ121	120	1	
R752	ERD2FCG220	22	1	⚠
R753	ERDS2TJ331	330	1	
R761	ERDS2TJ102	1k	1	
R762	ERDS2TJ103	10k	1	
		Variable Resistors		
VR701,702	EVN61AA00B23	2k	2	
VR741	EVNE4AA00B24	20k	1	or VRV0022
VR751	EVNE4AA00B14	10k	1	or VRV0021
		Capacitors		
C711	ECKF1H103ZF	Ceramic 50V 0.01	1	
C713	ECKF1H103ZF	Ceramic 50V 0.01	1	
C714	ECEA1HK010	Electrolytic 50V 1	1	
C721	ECCF1H040CC	Ceramic 50V 4P	1	
C722	ECCF1H050CC	Ceramic 50V 5P	1	
C723-726	ECKF1H103ZF	Ceramic 50V 0.01	4	
C727	ECQV1H224JZ	Mylar 50V 0.22	1	
C728	ECKF1H103ZF	Ceramic 50V 0.01	1	
C730	ECCF1H150JC	Ceramic 50V 15P	1	
C731,732	ECCF1H040CC	Ceramic 50V 4P	2	
C733	ECCF1H220JC	Ceramic 50V 22P	1	
C734	ECCF1H151JP	Ceramic 50V 150P	1	
C735	ECCF1H150JC	Ceramic 50V 15P	1	
C736,737	ECKF1H103ZF	Ceramic 50V 0.01	2	
C738	ECCF1H150JC	Ceramic 50V 15P	1	
C739	ECCF1H560JR	Ceramic 50V 56P	1	
C740	ECCF1H220JR	Ceramic 50V 22P	1	
C741	ECCF1H150JC	Ceramic 50V 15P	1	
C742	ECCF1H680JC	Ceramic 50V 68P	1	
C751	ECCF1H820JC	Ceramic 50V 82P	1	
C752	ECCF1H050CC	Ceramic 50V 5P	1	
C753	ECCF1H820JP	Ceramic 50V 82P	1	
C754	ECQV1H473JZ	Mylar 50V 0.047	1	
C755	ECEA1CK101	Electrolytic 16V 100	1	
C756	ECCF1H390JC	Ceramic 50V 39P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C757		ECCF1H120JC	Ceramic 50V 12P	1	
C758		ECEA1CK100	Electrolytic 16V 10	1	
C759		ECQV1H104JZ	Mylar 50V 0.1	1	
			Coils		
L702		VLQEL05F470K	47uH	1	
L704		VLQEL05F150K	15uH	1	
L705		VLQEL05F560K	56uH	1	
L706		VLQEL05F820K	82uH	1	
L751		VLQEL05F220K	22uH	1	
			Transformers		
T701		EULHLS301		1	
T702		ELM7A4101Y		1	
T703		EIV7E016F		1	
T704		EIV7E016E		1	
T751		EIS7E006A		1	
T752		EIS7E006B		1	
			Crystal Oscillators		
X702		EFCS5R5MS4		1	or VLF0178
X703		EFCS5R5MW3		1	or VLF0182
			Connector		
P701		VJP1245	5P	1	
			Miscellaneous		
		VSC1216	Shield Case (Top)	1	
		VSC1147	Shield Case (Main)	1	
		VSC1148	Shield Case (Bottom)	1	
			(Tuner Section)	1	
			Diodes		
D701,702		RD8.2JB3	Zener	2	
			Resistors		
R701		ERDS2TJ123	12k	1	
R702		ERDS2TJ392	3.9k	1	
R703,704		ERDS2TJ182	1.8k	2	
R705.706		ERDS2TJ332	3.3k	2	
			Capacitors		
C701		ECKF1H103ZF	Ceramic 50V 0.01	1	
C702		ECEA1CKS220	Electrolytic 16V 22	1	
C703		ECEA1CKS100	Electrolytic 16V 10	1	
C704		ECKF1H103ZF	Ceramic 50V 0.01	1	
C705		ECEA1CKS330	Electrolytic 16V 33	1	
C706		ECKF1H103ZF	Ceramic 50V 0.01	1	
C707		ECEA1HKS010	Electrolytic 50V 1	1	
C708		ECEA1CKS330	Electrolytic 16V 33	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C709		ECEA1CKS100	Electrolytic 16V 10	1	
C710		ECQV1H104JZ	Mylar 50V 0.1	1	
			Coil		
L701		VLQEL05F680K	68uH	1	
			Connectors		
P703		VJP1251	11P	1	
P704		VJP1242	2P	1	
			Miscellaneous		
		TNV77759F2	Tuner	1	⚠
		VEP06240A	Timer & Operation (1)	1	
			P.C. Board Unit		
			Integrated Circuit		
IC6501		MN15823VGQ		1	
			Transistor		
Q6501		2SD637		1	(Q,R,S)
			Combination Parts		
			(Transistor & Resistor)		
QR6501		DTA144A		1	or UN1113
			Diodes		
D6501		MA4075	Zener	1	
D6502-6515		MA165		14	
			Resistors		
R6501		ERDS2TJ683	68k	1	
R6502		ERDS2TJ473	47k	1	
R6503		ERDS2TJ822	8.2k	1	
R6504		ERDS2TJ472	4.7k	1	
R6505		ERDS2TJ272	2.7k	1	
R6506		ERDS2TJ122	1.2k	1	
R6507,6508		ERDS2TJ681	680	2	
R6509		ERDS2TJ820	82	1	
R6510		ERDS2TJ104	100k	1	
R6511		ERDS2TJ820	82	1	
R6512		ERDS2TJ222	2.2k	1	
R6513		ERDS2TJ223	22k	1	
R6514		ERDS2TJ120	12	1	
R6515		ERDS2TJ103	10k	1	
R6551		ERDS2TJ682	6.8k	1	
			Variable Resistors		
VR2007		EVJFRAF15B15	100k	1	Tracking VR
VR3004		EVJFRAF15B24	20k	1	Picture VR

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Capacitors		
C6501		ECKF1H103ZF	Ceramic 50V 0.01	1	
C6502		ECEA1HKR22	Electrolytic 50V 0.22	1	
C6503,6504		ECKF1H103ZF	Ceramic 50V 0.01	2	
			Switches		
S6501-6509		EVQQS307K		9	
S6510		ESD14182		1	
S6511-6521		EVQQS307K		11	
S6522		ESD14181		1	
			Transformer		
T6501		ELM7Q206A		1	
			Display Tube		
DP6501		VSL0048		1	
			Connectors		
P6501		VJP1248	8P	1	
P6502		VJP1237	10P	1	
			Miscellaneous		
		VJF0234	Display Tube Holder (L)	1	
		VJF0233	Display Tube Holder (R)	1	
		VGU1795	VR Knob	2	
		VEP07261W	CH Preset P.C Board	1	
			Unit		
			Integrated Circuits		
IC7501		MN14824VTU		1	
IC7502		AN5033		1	
IC7503		MN1228		1	
			Transistors		
Q7501,7502		2SB644		2	
Q7503		2SD637		1	
			Combination Parts		
			(Transistor & Resistor)		
QR7501		DTA114A		1	or UN1111
QR7503-7505		DTC144A		3	or UN1213
QR7515		DTC114A		1	or UN1211
QR7516,7517		DTC144A		2	or UN1213
QR7518		DTA124A		1	or UN1112

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Diodes		
D7501		LN28WPVT	LED	1	
D7502		MA27W-B		1	
D7503		10E1		1	
D7504		LN38GCPP	LED	1	
D7505-7508		MA165		4	or 1SS133
D7511-7513		MA165		3	or 1SS133
D7515-7517		MA165		3	or 1SS133
D7532,7533		MA165		2	or 1SS133
D7545-7547		MA165		3	or 1SS133
			Resistors		
R7501		EROS2CKG1003	Metal Oxide 1/2W 100k	1	
R7502		ERO25SKG6813	Metal Oxide 681k	1	
R7503		ERDS2TJ103	10k	1	
R7504,7505		ERDS2TJ473	47k	2	
R7506		ERDS2TJ223	22k	1	
R7507		ERDS2TJ104	100k	1	
R7508		ERDS2TJ124	120k	1	
R7509		ERDS2TJ104	100k	1	
R7510,7511		ERDS2TJ332	3.3k	2	
R7512		ERDS2TJ820	82	1	
R7513		ERDS2TJ473	47k	1	
R7514		ERDS2TJ390	39	1	
R7515		ERDS2TJ153	15k	1	
R7516		ERDS2TJ122	1.2k	1	
R7517		ERDS2TJ271	270	1	
R7518		ERDS2TJ391	390	1	
R7519		ERDS2TJ105	1M	1	
R7520		ERDS2TJ273	27k	1	
R7526		ERDS2TJ393	39k	1	
R7534		ERDS2TJ222	2.2k	1	
R7535		ERDS2TJ473	47k	1	
R7536,7537		ERDS2TJ222	2.2k	2	
R7542		ERDS2TJ224	220k	1	
R7543		ERDS2TJ273	27k	1	
R7545		ERDS2TJ182	1.8k	1	
			Variable Resistors		
VR2003		EVN58AA00B15	100k	1	V-LOCK
VR7502		EVN61AA00B14	10k	1	
VR7505		EWEU2A016B24	20k	1	
			Capacitors		
C7501		ECQB1H104JH	Mylar 50V 0.1	1	or ECQV1H104JZ
C7502		ECQB1H683JH	Mylar 50V 0.068	1	or ECQV1H683JZ
C7503		ECQB1H823JH	Mylar 50V 0.082	1	or ECQV1H823JZ
C7504		ECQB1H273JH	Mylar 50V 0.027	1	or ECQV1H273JZ
C7505,7506		ECKF1H103ZF	Ceramic 50V 0.01	2	
C7507		ECCF1H330JC	Ceramic 50V 33P	1	
C7508		ECCF1H680JC	Ceramic 50V 68P	1	
C7509		ECEA1HK010	Electrolytic 50V 1	1	
C7510		ECEA1HKR22	Electrolytic 50V 0.22	1	
C7511		ECKF1H103ZF	Ceramic 50V 0.01	1	
C7512		ECEA1HK010	Electrolytic 50V 1	1	
C7513		ECEA2AS100	Electrolytic 100V 10	1	
C7514,7515		ECKF1H103ZF	Ceramic 50V 0.01	2	
C7517		ECEA0JK220	Electrolytic 6.3V 22	1	
C7518-7520		ECKF1H103ZF	Ceramic 50V 0.01	3	
C7522		ECKF1H103ZF	Ceramic 50V 0.01	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C7523		ECQV1H104JZ	Mylar 50V 0.1	1	
C7527		ECEA1HK010	Electrolytic 50V 1	1	
C7528		ECQB1H152JH	Mylar 50V 1500P	1	
			Coils		
L7501		VLQEL05F102K	1mH	1	
L7502		VLQEL05F220K	22uH	1	
			Switches		
SW7501		ESD14137A		1	Band SW
SW7502		VES0213		1	Preset SW
SW7503-7505		EVQQSB05G		3	AFC/FINE(UP)/FINE
					(DOWN)
			Crystal Oscillator		
X7501		EF0A4R19M02C		1	4.19MHz OSC
			Connector		
P7501		VJP1238	11P	1	
			Miscellaneous		
		VGQ0457	LED Spacer	1	
		VGT0305	Local Knob	1	
		ENC87771	RF Converter & Antenna	1	⚠
			Terminal Unit		
			Integrated Circuit		
IC1		AN3110		1	
			Transistors		
Q1		2SC2480		1	or 2SC3130
Q2,3		2SC2570A		1	or 2SC2671F,2SC3355
			Diodes		
D1,2		1SS86		2	or 1SS88,1SS97,1SS98,
					1SS99,1SS174
D3,4		MA161		2	or 1SS110,1SS135
		NOTE:			
		The other parts for RF Converter &			
		Antenna Terminal Unit are not			
		available as spare parts.			

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VJB00C40	Supply Photo Tr.	1	
			P.C. Board		
			Transistor		
Q1502		PN150NV	Photo TR	1	
			Capacitor		
C1502		ECKF1H102KB	Ceramic 50V 1000P	1	
			Miscellaneous		
		VMD0645	Photo TR Holder	1	
		VJB00C48	Sensor LED P.C. Board	1	
			Diode		
D1501		GL450	Photo Diode	1	or LN59
			Miscellaneous		
		VMD0644	LED Holder	1	
		VJB00D08	Mechanism Connection	1	
			P.C. Board		
			Capacitor		
C1504		ECEA1HKN010	Electrytic 50V 1	1	
			Connectors		
P1511		VJP1245	5P	1	
P1513		VJP1238	11P	1	
P1514,1515		VJP1229	2P	2	
P1516		VJP1230	3P	1	
		VJB00D09	Cylinder Heater P.C.	1	
			Board		
			Transistor		
Q1501		2SD1275		1	(P,Q,R)
			Connector		
P1506		VJP1243	3P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VJB00D10	Front Loading P.C. Board	1	
			Transistor		
Q1503		PN150NV	Photo TR	1	
			Capacitor		
C1503		ECKF1H102KB	Ceramic 50V 1000P	1	
			Connector		
P1510		VJP1247	7P	1	
			Miscellaneous		
		VMD0645	Photo TR Holder	1	
		VJB00D11	Reel Sensor P.C. Board	1	
			Photo Interrupter		
IC1501		ON2160		1	or ON2160R
			Connector		
P1518		VJP1229	2P	1	
			Miscellaneous		
		VMX0744	Sensor Spacer	1	
		VJB01168	Power Transformer P.C. Board	1	⚠
			Transistors		
Q1101		2SA684		1	
Q1102		2SD1275		1	
			Diodes		
D1101		RD13EB2	Zener	1	or EQA0212B
D1102		10E1		1	
D1103,1104		11E2		2	
D1105		MA4300	Zener	1	
			Resistors		
R1101		ERDS2TJ562	5.6k	1	
R1102		ERDS2TJ152	1.5k	1	
R1103		ERD2FCJ4R7	4.7	1	⚠
R1151		ERQ12HKR56P	Fuse Resistor 1/2W 0.56	1	⚠
			Capacitors		
C1101		ECEA1CK100	Electrolytic 16V 10	1	
C1102		ECEA1VU332	Electrolytic 35V 3300	1	
C1103,1104		ECEA2AU470	Electrolytic 100V 47	2	
C1105-1107		ECKF1H223ZF	Ceramic 50V 0.022	3	
			Connectors		
P1101		VJP1250	10P	1	
P1102,1103		VJP1148	2P	2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Miscellaneous		
		SJT777	AC Cord Clamp Pin	2	⚠
		TJC6320	Fuse Holder	4	⚠
		VJA0111	AC Cord	1	⚠
		VJF0107	Bushing	1	⚠
		VMP0495	Power Transformer Angle	1	⚠
		VJF0215	Binder	1	⚠
		VMX0237	AC Cord Cover	1	⚠
		VMZ0606	Power Transformer Barrier	1	⚠